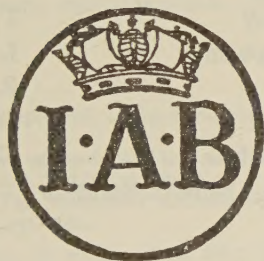


HELMINTHOLOGICAL ABSTRACTS

incorporating
BIBLIOGRAPHY OF HELMINTHOLOGY
For the Year 1946.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY
(HELMINTHOLOGY)

Winches Farm Drive, Hatfield Road,
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IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY (HELMINTHOLOGY)

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HELMINTHOLOGICAL ABSTRACTS
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BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by :

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HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY

FOR THE YEAR 1946

Vol. XV, Part 4

151—Aarsskrift den Kongelige Veterinaer- og Landbohøjskole. København.

- a. CHRISTENSEN, N. O. & ROTH, H., 1946.—“Undersøgelser over Mave-Tarmparasitter hos Katten.” 1946, pp. 114-144. [English summary pp. 140-141.]

(151a) Whereas Krabbe found *Dipylidium caninum* to be the commonest parasite of 100 cats in Copenhagen in 1866, the authors from the same number failed to obtain this tapeworm. The other helminths found were *Toxocara cati* present in 67, and *Taenia taeniaeformis* in 7. New to Denmark were *Cryptocotyle lingua* in 6 cases, *C. concava* in one, *Ollulanus tricuspis* in 13, *Capillaria putorii* in one, and *Ancylostoma caninum* in 2. The paper is illustrated by 4 fine photographs of *O. tricuspis*.
R.T.L.

152—Acta Medica Orientalia. Jerusalem.

- a. PLASCHKES, S. J., 1946.—“*Ascaris-pneumonia*. (Notes on the review on *Ascaris lumbricoides*).” 5 (3), 80-81.

(152a) Plaschkes reviews the literature of *Ascaris pneumonia* and the occurrence of *Ascaris* eggs and larvae in pus, in sputum, and in positions other than the alimentary canal.
R.T.L.

153—Acta Medica Scandinavica.

- a. WIRD, K., 1946.—“A trichinosis epidemic in the Borås district, its clinical and epidemiological aspects.” 126 (1), 1-16.
b. ROTH, H., 1946.—“Employment of serological and skin tests at outbreaks of trichinosis in the Alingsås and Borås districts (Sweden).” 126 (1), 17-33.
c. CAWSTON, F. G., 1946.—“The control of schistosomiasis with due consideration of the destruction of larvae.” 126 (2/3), 237-240.

(153a) An outbreak of trichinosis, in which there were 37 undoubted cases, occurred in Sparsör, near Borås. Thirty-five of the cases gave a positive precipitin reaction with living trichinae. The incubation period ranged from 14 to 24 days. Those with the shorter period were moderately severe while those with a longer interval were relatively mild. Details of the clinical symptoms are recorded. None of the cases was fatal. Local foxes are frequently infected and the possibility that the pig which caused the outbreak derived its infection from this source is discussed. The dogs on the farm gave a positive blood test for trichinosis whereas the rats were negative.
R.T.L.

(153b) During 2 outbreaks of trichinosis in Sweden, Roth had an opportunity of assessing the various diagnostic methods. It is usually impossible to demonstrate actual living larvae in the stool or blood and it is frequently impossible to find them in the muscles. The intradermal and precipitin tests are often very useful for diagnosis but there have been cases where non-infected patients have given false positives. However, a new microscopic precipitin test was shown to be very reliable. Serum from the patient is placed in a cavity slide in contact with 100 trichina larvae, obtained by digestion from some laboratory animal, and the slide is incubated at 37°C. In positive cases a series of bubbles or finely granulated appendages appears at the anterior end of the larvae after 5 hours, and after 24 hours the precipitate is spread through the serum. This test can be used at the 2nd or 3rd week of the illness.
P.A.C.

*Titles so marked throughout this number have not been seen in the original.

(153c) The lessening rainfall experienced in South Africa over the last 30 years has resulted in the disappearance of many of the enemies of the bilharzia intermediaries. In 1945, during an exceptionally dry season, *Physopsis africana* in the open river reached the abnormal size of 20 mm. Attention is directed to the ease with which bilharzia cercariae are damaged by agitation of the water in which they are swimming. The use of buried reservoirs to suffocate the snails, the drawing off of water from near the bottom of the reservoir, the pumping of water through a coiled heated pipe in a power station, and the addition of chemicals to the enclosed water of reservoirs and tanks are suggested. A diagram has a legend "the fool-proof device for schistosomiasis areas".

R.T.L.

154—Amateur Gardening.

- a. WHITEHEAD, S. B., 1946.—"Outwitting the potato eelworm." 63 (3255), 19.

(154a) Whitehead describes briefly the potato root eelworm and its life-history, and a small-scale experiment for its control in gardens. A plot of infested ground, 11 by 6 yards in size, was divided into 3. On 2 of the plots mustard was sown in September and dug in together with a top dressing of rotted compost at the rate of one cwt. per 10 square yards in December. The third plot was untreated. In the spring the first plot was planted with potatoes having a dressing of compost in the rows; the second was sown with peas and the third grew brassicas. There was some eelworm on the potatoes but less than in the previous year. In the second year a heavy dressing of compost was applied to the first 2 plots but still nothing to the third. Potatoes were grown on all 3 and showed very few eelworm cysts on the first and second, but on the third they were as badly infected as they had been 3 years before. The author concludes that mustard as a green manure and heavy organic manuring will provide efficient control of potato eelworm in the garden.

M.T.F.

155—American Journal of Hygiene.

- a. BANG, F. B. et al., 1946.—"Studies on Schistosomiasis japonica. I. Introduction." 44 (3), 313-314.
 b. BANG, F. B., HAIRSTON, N. G., GRAHAM, O. H. & FERGUSON, M. S., 1946.—"Studies on Schistosomiasis japonica. II. Methods of surveying for Schistosomiasis japonica." 44 (3), 315-323.
 c. SULLIVAN, R. R. & FERGUSON, M. S., 1946.—"Studies on Schistosomiasis japonica. III. An epidemiological study of Schistosomiasis japonica." 44 (3), 324-347.
 d. BANG, F. B. & HAIRSTON, N. G., 1946.—"Studies on Schistosomiasis japonica. IV. Chemotherapy of experimental Schistosomiasis japonica." 44 (3), 348-366.
 e. FERGUSON, M. S., GRAHAM, O. H., BANG, F. B. & HAIRSTON, N. G., 1946.—"Studies on Schistosomiasis japonica. V. Protection experiments against Schistosomiasis japonica." 44 (3), 367-378.
 f. BROWN, H. W. & THETFORD, N. D., 1946.—"Further studies on the treatment of filariasis due to *Wuchereria bancrofti* with lithium antimony thiomalate." 44 (3), 379-383.
 g. DONALDSON, A. W. & OTTO, G. F., 1946.—"Effects of protein-deficient diets on immunity to a nematode (*Nippostrongylus muris*) infection." 44 (3), 384-400.

(155b) The relative value of stool examinations, liver index, mollusc collection and natural infection in rats for the diagnosis of Schistosomiasis japonica are discussed. 50% of the population may have infections which are unrecognized by local physicians. The absence of positive findings in a large proportion of individuals is no certain indication that the majority are free from infection. There may be a great improvement in the health of the community without a change in the percentage of infected persons. The intensity of individual infection requires quantitative determination. Repeated stool examination may reveal infection overlooked by a single test. There is a relation between the incidence of infection and liver enlargement; in hyperendemic areas 80% of the children have palpable livers. Failure to find the intermediate host is never proof that it is not present; it is easier to find infected persons. Evidence was obtained that infection may be transported downstream for more than half a mile.

R.T.L.

(155c) This is an epidemiological study of 102 *Schistosoma japonicum* infections in a U.S. Combat Engineer Battalion on Leyte, Philippines. The duty activities are correlated with the

distribution of the cases. A 30% eosinophilia was a valuable "screen" for case finding. Failure to find intermediate hosts at suspected sites of exposure was no criterion of safety; the foci of snail breeding were markedly localized. The need for protective equipment in addition to rubber boots, etc., is emphasized. The paper is beautifully illustrated by 11 photographic reproductions.

R.T.L.

(155d) The effects of tartar emetic and of Fouadin on experimental Schistosomiasis japonica infections in dogs, goats, rabbits, guinea-pigs and hamsters are tabulated. The guinea-pig proved the most satisfactory animal for chemotherapeutic studies. The drugs produced degeneration of the yolk glands, ovary and testes, and loss of haematin. If continued beyond 4 weeks an increased percentage of the worms was killed. It was thought that antimony had no direct effect on the egg. Thirteen tables supply experimental data.

R.T.L.

(155e) The application to the skin of dimethyl phthalate, dibutyl phthalate, benzyl benzoate or of ointments containing these chemicals is considered, from the tests described in the paper, to be valuable as a protection against schistosome infection. The cloth, especially of wool, used for army trousers offered considerable protection and if impregnated with one of these chemicals prevented penetration by cercariae, although this effect was partially lost after washing or immersion in water.

R.T.L.

(155f) Intramuscular injections of lithium antimony thiomalate produced a rapid and permanent diminution in the circulating microfilariae of *Wuchereria bancrofti*. There was a 90% reduction in 61% of 18 patients treated for 7 to 28 days, while 4 of them became completely negative for microfilariae.

R.T.L.

(155g) Donaldson & Otto found that rats fed on a diet low in protein content did not develop the high degree of resistance to infestation with *Nippostrongylus muris* that occurred in control animals fed on a full diet. Further, animals which once possessed this resistance could later be more easily infested after being kept on a low protein diet. The mechanism of these changes is not yet apparent.

P.A.C.

156—American Journal of the Medical Sciences.

- a. DUNGAL, N., 1946.—"Echinococcosis in Iceland." 212 (1), 12-17.
- b. MOST, H., HAYMAN, Jr., J. M. & WILSON, T. B., 1946.—"Hookworm infections in troops returning from the Pacific." 212 (3), 347-350.
- c. ZARROW, M. & RIFKIN, H., 1946.—"Intestinal parasites diagnosed at an Army General Hospital in the South Pacific." 212 (3), 289-293.

(156a) According to official medical reports one out of every 8 persons in Iceland suffered from hydatid of the liver about the middle of the nineteenth century. Only 60 individuals, corresponding to one in 20.5, were found to be infected or showed unmistakable signs of having been infected during the 15-year period 1930 to 1944. Moreover, the disease is now comparatively rare among the younger generation, no cyst being found in anyone under 20 years of age, whereas hydatids occurred in 20% in those over 70 years old, and in 16% of all persons over 60. The decrease is attributed to education, the causal relationship between people and sheep and infection in dogs having been explained to the entire population. Sheep are now slaughtered under conditions which exclude dogs; sheep which were formerly grown to 3 or 4 years of age are now mostly slaughtered as lambs. Every dog is given an anthelmintic yearly. It is noted that other cysts in sheep have disappeared since the treatment of dogs was commenced. Lastly the rural population has largely moved into towns and villages; one-third of the entire population lives in Reykjavik.

R.T.L.

(156b) This paper deals with the nature, severity, and results of treatment of patients with hookworm infection who had served in the American forces in various Pacific Islands. These infections, acquired overseas, were generally very light. In no case were any signs or symptoms attributable to hookworm alone.

R.T.L.

(156c) The incidence of intestinal helminths in 3,415 American soldier patients, who had spent up to 3 years in various South Pacific Islands, is compared with that of persons living in U.S.A. The data are tabulated. An analysis of the number of laboratory examinations

required for a positive diagnosis in 165 patients infected with hookworm shows that 76.3% were positive on a first examination, rising to 100% at the 6th examination. Hookworm occurred in 13.2% of all cases, *Trichuris* in 2.4%, *Strongyloides* in 1.5%, *Ascaris* in 0.67%, *Enterobius* in 0.41%, *Hymenolepis* in 0.25%, and *Taenia* sp. in 0.03%. R.T.L.

157—American Journal of Pathology.

- a. WARTMAN, W. B., 1946.—“Filariasis in American armed forces.” [Abstract of paper presented at the 43rd Annual Meeting of the American Association of Pathologists and Bacteriologists, Chicago, March 8 and 9, 1946.] 22 (3), 653. [Discussion pp. 653-654.]
- b. DUNGAL, N., 1946.—“Experiments with jaagsiekte.” 22 (4), 737-750.
- c. ZIMMERMAN, H. M., 1946.—“Fatal hookworm disease in infancy and childhood on Guam.” 22 (6), 1081-1099.

(157a) Clinical symptoms in cases of filariasis contracted in the Pacific, chiefly in Samoa, by American personnel consisted of acute lymphangitis of the extremities, especially the arms, lymphadenitis and fugitive swellings; these attacks were brief but recurrent. Genital lesions included acute funiculitis, epididymitis, orchitis, inflammation of the scrotal skin, and hydrocoele. Microfilariae were found in only 7 out of 63 patients. Skin tests with *Dirofilaria* antigen were positive in 90% of the cases. Tissue reactions were granulomatous inflammation, proliferation of cells of the reticulo-endothelial system and exudation of eosinophiles. Typical granulomas formed around the adult worms which eventually became calcified or disappeared. Eosinophile abscesses sometimes formed. R.T.L.

(157b) Every sheep in Iceland is infected with *Muellerius capillaris*. Dungal's experiments have failed to implicate this worm as a vector of the virus of jaagsiekte, which is apparently conveyed in the exhaled breath of sick sheep. R.T.L.

(157c) Malnutrition, neglect and poor sanitation were important factors in the 21 fatal cases of hookworm in children investigated at Guam. In at least some of the cases bedclothes were considered to be the source of infection. The outstanding lesion was acute jejunitis proceeding in some instances to extensive ulceration, haemorrhage, necrosis and infiltration of the lesions with eosinophiles. In 6 cases there was purulent peritonitis. Terminal infections, chiefly of the respiratory organs, frequently obscured the hookworm infection. Seven cases of cardiac hypertrophy and/or dilatation had severe anaemia. There was evidence that the eosinophilic accumulations in the bone marrow, by interfering with normal erythropoiesis, contributed in part to the anaemia. R.T.L.

158—American Journal of Public Health.

- a. SHOOKHOFF, H. B., BIRNKRANT, W. B. & GREENBERG, M., 1946.—“An outbreak of trichinosis in New York City, with special reference to the intradermal and precipitin tests.” 36 (12), 1403-1411.

(158a) An outbreak of trichinosis in 1945 in New York City originated from a variety of smoked pork products distributed by one wholesaler. Fifty of the infected persons had eaten mettwurst. The pork had not been subjected to the freezing process as this had been abandoned during the war. None of the cases was fatal. Tables show the frequency of the more common signs and symptoms and their order of appearance: of these eyelid oedema, muscle pain and fever were the commonest manifestations. Typical prodromal gastro-enteritis occurred in only 7 cases. The precipitin test became positive earlier than the intradermal test in the average case but gave more false positive reactions. It is therefore desirable to use both tests, especially in doubtful cases. R.T.L.

159—American Journal of Tropical Medicine.

- a. EINHORN, N. H. & MILLER, J. F., 1946.—“Intestinal helminthiasis: clinical survey of six hundred and eighteen cases of infection with common intestinal helminths in children.” 26 (4), 497-515.
- b. LOUGHLIN, E. H. & STOLL, N. R., 1946.—“An efficient concentration method (AEX) for detecting helminthic ova in feces. (Modification of the Telemann technic).” 26 (4), 517-527.

- c. HINMAN, E. H. & MARTÍNEZ BAEZ, M., 1946.—“Opportunities for training and research in tropical medicine and public health in Mexico.” 26 (4), 529-537.
- d. FAUST, E. C. & INGALLS, J. W., 1946.—“The diagnosis of Schistosomiasis japonica. III. Technics for the recovery of the eggs of *Schistosoma japonicum*.” 26 (5), 559-584.
- e. STOLL, N. R., LOUGHLIN, E. H., HARRIS, A. H. & CHENOWETH, Jr., B. M., 1946.—“A study of hookworm infection in Navy and Marine personnel on Guam.” 26 (5), 687-698.
- f. NEWTON, W. L. & PRATT, I., 1946.—“Experiments to determine potential mosquito vectors of *Wuchereria bancrofti* in the continental United States. Part 2.” 26 (5), 699-706.
- g. NELSON, E. C., WEBB, J. E., BAYLISS, M. & STARKEY, G. S., 1946.—“Studies of filariasis. Development of *Wuchereria bancrofti* in *Culex quinquefasciatus* of Oahu.” 26 (5), 707-713.
- h. CRAM, E. B. & FILES, V. S., 1946.—“Laboratory studies on the snail host of *Schistosoma mansoni*.” 26 (5), 715-720.
- i. ACKERT, J. E. & WISSEMAN, Jr., C. L., 1946.—“Tolerance of fowls for moderate infections of intestinal helminths.” 26 (5), 721-728.
- j. KEAN, B. H., 1946.—“The causes of death on the Isthmus of Panama. Based on 14,304 autopsies performed at the Board of Health Laboratory, Gorgas Hospital, Ancon, Canal Zone, during the forty year period 1904-1944.” 26 (5), 733-748.
- k. HARRIS, A. H. & DOWN, H. A., 1946.—“Studies on the dissemination of cysts and ova of human intestinal parasites by flies in various localities on Guam.” 26 (6), 789-800.
- l. WEINBERG, H. B. & TILLINGHAST, A. J., 1946.—“The pulmonary manifestations of schistosomiasis caused by *Schistosoma japonicum*.” 26 (6), 801-809.
- m. HERNÁNDEZ-MORALES, F. & MALDONADO, J. F., 1946.—“The diagnosis of Schistosomiasis mansoni by a rectal biopsy technique.” 26 (6), 811-821.
- n. SCOTT, J. A. & CROSS, J. B., 1946.—“A laboratory infection of the rat with filarial worms.” 26 (6), 849-855.

(159a) Previous publications have dealt with the cases of intestinal parasites admitted to the pediatric wards of Gorgas Hospital, Ancon, Panama, from January 1941 to January 1944. The present communication summarizes the clinical data obtained in the completed survey and discusses the relative merits of various anthelmintics used. R.T.L.

(159b) The Telemann technique for the detection of helminth eggs in faeces is modified by the use of hydrochloric acid of specific gravity 1.03 and a mixture of ether and xylol in equal parts. The HCl disintegrates the faeces satisfactorily and the addition of xylol prevents the foaming which usually accompanies the ether; it also lessens the adhesive properties of the faecal debris. The new technique, AEX, is superior to Telemann and DCF techniques, both of which give negative results with infections showing only infertile *Ascaris* eggs and in cases of *Schistosoma japonicum* infection. R.T.L.

(159c) The Instituto de Salubridad y Enfermedades Tropicales, which is the official centre for research in Mexico, is composed of 12 laboratories with a small research hospital of 36 beds. In the laboratory of helminthology investigations are being made on *Trichina*, *Taenia*, *Enterobius*, *cysticerci* and *Onchocerca*. A special hospital of 50 beds for the treatment of the more serious cases of onchocerciasis was opened at Huixtla, Chiapas in 1942, on the outer fringe of the endemic zone near the Pacific slopes devoted to the cultivation of coffee, where onchocerciasis cases are numerous. This hospital has also a special outpatient clinic for general parasitosis. A guest house within the hospital grounds provides for official visitors. The less serious cases are treated by brigades which visit villages and coffee estates. Each brigade consists of a doctor, nurse and attendants. Facilities for training and research are available to students and investigators from other countries. Many of the staff are bilingual. R.T.L.

(159d) Faust & Ingalls made an intensive study of methods for the examination of faeces for eggs of *Schistosoma japonicum*. The material utilized consisted of stools of infected patients before, during and subsequent to chemotherapy, and those of infected dogs. Four methods were tested: direct faecal films, sedimentation, zinc sulphate centrifugal flotation, and ether centrifugation. For recovery of the largest numbers of *S. japonicum* eggs in a small amount (one gramme) of stool, the Na_2SO_4 + Triton-ether centrifugation technique is considered to be the best one which has been developed. For routine examination, however, the sedimenta-

tion method utilizing 0.5% of glycerin is recommended, since the larger quantity of stool employed together with the high degree of concentration gives greater assurance that even small quantities of eggs in the untreated specimen will be detected. Both of the techniques recommended yield eggs of high diagnostic quality, including immature, mature, degenerate and calcified ones. J.J.C.B.

(159e) The hookworm incidence (chiefly *Necator*) of 5.7% found in 1,241 shore-based Navy personnel on Guam by the authors is considered to be surprisingly light in view of the high *Ancylostoma* index in natives. In Leyte-returned Marines the incidence was 34.1% of which about 33% were estimated to be *Ancylostoma*. In both groups most of the infections were light. J.J.C.B.

(159f) The previous studies of these authors [see Helm. Abs., Vol. XIV, No. 123g] to determine possible mosquito vectors of *Wuchereria bancrofti* in the United States are continued in this paper. From results obtained from experiments on 14 species of mosquitoes they conclude that *Culex pipiens* could become a major vector. *Psorophora discolor* was also readily infected but on account of its rural breeding habits its potentiality as a major vector is lessened. Low infectibility rates were obtained with *Anopheles crucians*, *Aedes thibaulti* and *Culex salinarius* which are considered as unlikely to become major vectors. Experimental work with *Anopheles maculipennis freeborni*, *A. quadrimaculatus*, *Psorophora ciliata*, *P. cyanoescens*, *Mansonia perturbans* and *Aedes canadensis* indicated that none of these is likely to become a successful intermediate host. J.J.C.B.

(159g) The growth and development of larval stages of *Wuchereria bancrofti* in *Culex quinquefasciatus*, the commonest mosquito in Oahu, which had been given infective blood meals from Okinawans, is described and illustrated with photomicrographs. Mature infective larvae were demonstrated in the labium of mosquitoes after 15 days. Larval stages of *W. malayi* failed to develop in the same species of mosquito. J.J.C.B.

(159h) The authors report negative results from attempts to infect American Planorbididae with *Schistosoma mansoni*, with the exception of a species of *Tropicorbis* in which a 9% experimental infection was obtained. The Planorbids which failed to become infected comprised 3 species of *Gyraulus*, 5 species or subspecies of *Helisoma* and one of *Planorbula*. [See also Helm. Abs., Vol. XIV, No. 220j.] J.J.C.B.

(159i) When experimentally infected with 200 eggs of *Ascaridia galli*, growing chickens 23 days old were able to tolerate one to 46 worms without showing definite harm during a period of 4 weeks. Chickens 40 days old, when fed with 200 larvae of *Raillietina cesticillus*, were not significantly harmed by 2 to 172 tapeworms during 8 weeks. The criteria for tolerance used were growth, blood sugar, haemoglobin and blood counts. R.T.L.

(159j) In 1,178 out of 14,304 autopsies at Ancon, Panama, the cause of death was attributed to tropical diseases. These included ancylostomiasis 22, ascariasis 7, hydatid 3, cysticercosis 2 and schistosomiasis 1. R.T.L.

(159k) Observations made by Harris & Down indicate that the ova of *Ascaris lumbricoides*, *Trichuris trichiura*, *Hymenolepis diminuta* and, most significantly, hookworm are present in the dejecta of flies in certain villages in Guam. Experiments are described which resulted in rhabditiform and filariform larvae which the authors consider to be those of hookworm. A photograph provides the evidence upon which their identification is based. R.T.L.

(159l) In a case of acute pulmonary schistosomiasis due to *Schistosoma japonicum*, which terminated fatally after tartar emetic treatment, the lung was studded with pseudo-tubercles each with an egg in the centre. The roentgenographic appearance was that of miliary tuberculosis. The clinical signs were cough, scanty mucoid sputum, pain in the chest and scattered râles. R.T.L.

(159m) The efficacy of Ottolina & Atencio's technique of removing with biopsy forceps a small piece of rectal mucosa for the diagnosis of Schistosomiasis mansoni has been proved so satisfactory by the authors that, after modification, it was successful in 100% of untreated cases

against 40% recognized by repeated faecal examination by the acid-ether method and 62% by the intradermal test. [See also-Helm. Abs., XIV, No. 220 bu.]

R.T.L.

(159n) By housing together uninfected cotton rats with others infected with *Litomosoides carinii*, 15 out of 16 of the uninfected cotton rats and the single white rat used became infected. The arthropods present were the flea, *Rhopalopsyllus gwyni*, and the mites, *Liponyssus bacoti* and *Atricholaelaps* sp. inq.

R.T.L.

160—American Journal of Tropical Medicine. Supplement.

- a. VEATCH, E. P., 1946.—“Part I. Appendix. Schistosomiasis in Liberia.” 26 (5), Supplement, pp. 53–56.

(160a) Of 23 cases of schistosomiasis at Bolahun, in Liberia, 20 were due to *S. haematobium* and 3 to *S. mansoni*. This is the first occasion on which *S. mansoni* has been reported from Liberia. *Physopsis africana* var. *globosa*, the intermediate host of *S. haematobium*, was found at several places in the Western Province. *Limnaea natalensis* var. *undussumae*, the intermediate host of *Fasciola gigantica* in cattle, was found at Kolahun but is said to be very rare in Liberia.

R.T.L.

161—American Midland Naturalist.

- a. NOLAND, L. E. & CARRIKER, M. R., 1946.—“Observations on the biology of the snail *Limnaea stagnalis appressa* during twenty generations in laboratory culture.” 36 (2), 467–493.
- b. ERICKSON, A. B., 1946.—“Incidence of worm parasites in Minnesota Mustelidae and host lists and keys to North American species.” 36 (2), 494–509.

(161a) This paper gives much useful information on the cultivation of Mollusca in aquaria which should prove of value to those who require to keep them for the study of the life-histories of trematodes.

R.T.L.

(161b) The known parasites of North American Mustelidae were listed by Stiles & Baker (1935). Erickson has brought this information up to date in a review of the literature of helminths of (i) mink, (ii) weasels and skunks, (iii) sea otter, otter and wolverine, (iv) marten, fisher and badger. The 24 species recovered by the author from 547 mustelids in Minnesota are tabulated with their hosts and percentage incidence. Keys are given for all the North American species of trematodes, cestodes and nematodes.

R.T.L.

162—Anales del Instituto de Biología. Mexico.

- a. CABALLERO Y C., E., 1946.—“Estudios helmintológicos de la región oncocercosa de México y de la Republica de Guatemala. Trematoda. II. Presencia de *Paragonimus* en reservorios naturales y descripción de un nuevo género.” 17 (1/2), 137–165.
- b. CABALLERO Y C., E., 1946.—“Un nuevo género de tremátodos de los peces marinos del Puerto de Salina Cruz, Oaxaca, México.” 17 (1/2), 167–174.
- c. CABALLERO Y C., E., 1946.—“Tremátodos de las tortugas de México. IV. Presencia de *Dictyogonium chelydrae* Stunkard, 1943, en una tortuga de agua dulce.” 17 (1/2), 175–178.
- d. BRAVO H., M., 1946.—“*Neoechinorhynchus emydis* (Leidy, 1852); Van Cleave, 1913, parásito del intestino de *Chrysemys ornata*.” 17 (1/2), 187–192.

(162a) Caballero, continuing his investigations of the helminth fauna of Mexico, now records the presence of *Gorgoderina attenuata* from *Rana* sp., *G. parvicava* from the urinary bladder of *Rana* sp., *Clinostomum complanatum* from the oesophagus of *Butorides virescens virescens*, and *Paragonimus rudis* from the lungs of *Didelphis mesamericana mesamericana* and *Mephitis macroura macroura*. *Rhopalias coronatus* was found for the second time while *R. horridus* from *Didelphis m. mesamericana* is fully described. *R. macracanthus* was found in the sub-species *tabascensis* of *D. mesamericana*. From the intestine of *Basiliscus vittatus* he describes *Parallopharynx arctus* n.g., n.sp. The genus resembles somewhat *Allopharynx* but can be distinguished by the distribution of the vitelline glands and by the relative positions of the ovary, acetabulum and testes. Other differences are the size of the cirrus sac, the shape of the testes and the absence of cuticular spines.

P.A.C.

(162b) Caballero describes *Emmettrema lariosi* n.g., n.sp., a parasite of the intestine of an unidentified sea fish from Mexican waters. It can be incorporated within the family Alloeocreadiidae. The genus is characterized by the position of the genital openings which occur at the level of the bifurcation of the gut, and by the structure of the cirrus sac. Other useful diagnostic features are the extent of the uterus and vitelline glands and the form of the ova.

P.A.C.

(162c) *Dictyangium chelydrae* has been recovered from the small intestine of the chelonid, *Chrysemys ornata*, in Vera Cruz. This material differs from the type material in a few minor details of the oral sucker, ovary and eggs. The species was originally described from *C. serpentina*.

P.A.C.

(162d) *Chrysemys ornata* is a host of *Neoechinorhynchus emydis* in Vera Cruz. Bravo H. describes the species in detail as certain differences were noted, particularly the overall size of the adults, the smooth skin and the asymmetry of the lemnisci.

P.A.C.

163—Annales de Parasitologie Humaine et Comparée.

- a. GALLIARD, H. & NGU, D.-V., 1946.—“Particularités du cycle évolutif de *Diphyllbothrium mansonii* au Tonkin.” 21 (5/6), 246–253.
- b. GALLIARD, H. & NGU, D.-V., 1946.—“Technique de numération des microfilaires du sang en goutte épaisse.” 21 (5/6), 254–256.
- c. DESPORTES, C., 1946.—“Sur un nouveau physaloptère de la bondrée, *Pernis apivorus* (L.).” 21 (5/6), 257–262.
- d. CALLOT, J., 1946.—“Amoenitates parasitologicae.” 21 (5/6), 377–378.
- e. CALLOT, J., 1946.—“Cas de distomatose humaine à *Fasciola hepatica* ayant échappé aux bibliographes.” 21 (5/6), 378–379.

(163a) Galliard & Ngu have demonstrated experimentally the complete life-cycle of *Diphyllbothrium mansonii* in Hanoi. Males of *Cyclops leuckarti* and *Cyclops* sp. (?) became 100% infected with proceroids 17 to 20 days after exposure. Female *Cyclops* remained uninfected. Attempts to infect frogs (*Rana tigrina*) with plerocercoids by feeding them with infected *Cyclops* failed completely, although this species of frog is normally naturally infected with plerocercoids in large numbers at certain times during the year. This led to the supposition that a third intermediate host might be essential and to the demonstration of the easy infectibility of tadpoles with plerocercoids on feeding them with infected *Cyclops*. Infected tadpoles became sluggish and even motionless a week later and were devoured by others more active. 20 to 30 days later the mortality amongst the infected tadpoles rose from 2% to 20%. The plerocercoids leave their dead hosts and can live in the water for 2 hours but there are usually swallowed by other tadpoles. A dog was infected experimentally with adult *D. mansonii* by feeding it with plerocercoids from tadpoles. Eggs were being passed 20 days after the infective feed. Since, however, dogs would not normally become infected from tadpoles, a more likely intermediate host was sought, and it was found that if infected tadpoles were fed to frogs the latter became infected with plerocercoids which were observed penetrating the stomach wall and migrating in tissues. Similar results were obtained with guinea-pigs and rats. The resistance of *Rana tigrina* to infection from proceroids together with the ease with which plerocercoids from the tadpoles can infect it, indicate that under natural conditions the tadpole is an indispensable intermediate host in the life-cycle of *D. mansonii* in Tonkin.

J.J.C.B.

(163b) The authors present a technique for estimating the relative numbers of microfilariae in drops of blood of uncalculated volume, of use in plotting curves showing the hourly variation in the numbers of microfilariae in blood. The number of microfilariae in each drop is counted and a constant is arrived at by relating this to the number of leucocytes in a transverse band crossing the drop at its greatest diameter, which is an expression of the thickness of the drop. A comparison of this technique with more accurate methods gave good results.

J.J.C.B.

(163c) Desportes describes *Physaloptera apivori* n.sp. from the Honey Buzzard (*Pernis apivorus*). It was collected from two of these birds which had been captured in different parts

of France. The new species is characterized by an unusual arrangement of the 3 sessile pre-cloacal papillae in the male, of which the single pair is situated very far anteriorly to the unpaired one.

J.J.C.B.

(163d) Callot reviews very unfavourably, and cites a number of important errors in, the recent book by A. Guillaume entitled "Les animaux parasites de l'homme et des animaux domestiques. Moyens de destruction. Fascicule premier: Les vers parasites ou helminthes."

J.J.C.B.

(163e) Callot draws attention to the omission from publications on human infections with *Fasciola hepatica* of a case recorded by Stafford in 1905 of the occurrence of *F. hepatica* in the bile duct of an Italian, in a paper entitled "Trematodes from Canadian vertebrates" in Zool. Anz., Vol. 28, pp. 681-694.

J.J.C.B.

164—Annales de la Société Belge de Médecine Tropicale.

- a. DUBOIS, A., 1946.—"Prurigo et *Loa loa*." 26 (2), 109-110. [Flemish summary p. 110.]
- b. PEEL, E. & CHARDOME, M., 1946.—"Sur des filaridés de chimpanzés *Pan paniscus* et *Pan satyrus* au Congo Belge." 26 (2), 117-156. [Flemish summary pp. 151-152.]
- c. RODHAIN, J., 1946.—"Corollaire à l'étude de E. Peel et M. Chardome sur les filaridés des chimpanzés au Congo Belge." 26 (2), 157-160. [Flemish summary p. 159.]

(164b) Peel & Chardome record the discovery of *Mf. streptocerca* Macfie & Corson, 1922 in the skin of chimpanzees in Belgian Congo. Prolonged search for the parent worms, hitherto unknown, yielded 2 females in the connective tissue of the skin. These are described in detail and assigned to the genus *Dipetalonema*. A new species, *D. vanhoofi*, was also found in chimpanzees, in fibrous nodules in the aponeuroses of the gallbladder and in the investing membranes of the vena descendens. The nodules usually contained a female and two males which were surrounded by a fibrous exudate. The new species resembles *D. perstans* closely and its microfilaria, which occurs in the blood, is also very similar to that of *D. perstans*. The authors believe that previous records of *Mf. perstans* in the blood of anthropoids are in reality referable to *Mf. vanhoofi*. In addition to *Mf. streptocerca*, 2 other new microfilariae were found in the skin of chimpanzees: *Mf. rodhaini* n.sp. and *Mf. binucleata* n.sp. These are described and figured in detail. [These new scientific names have also been used by the authors in another publication—see below, No. 240b.]

J.J.C.B.

(164c) In the light of the recent discoveries of Peel & Chardome [see previous abstract], Rodhain admits that his former opinion that *Paraloe anthropopitheci* Rodhain & van den Berghe, 1939 is the parent form of the *Mf. perstans* (sic) recorded in African anthropoids, is no longer tenable.

J.J.C.B.

165—Annales de la Société des Sciences Naturelles de la Charente-Maritime.

- a. DOLLFUS, R. P., 1946.—"Essai de catalogue des parasites poisson-lune *Mola mola* (L. 1758) et autres Molidae." 3 (7), 69-76.

(165a) Dollfus gives a preliminary list of the parasites of *Mola mola*. This includes 2 species of monogenetic trematodes, 16 species of digenetic trematodes, 5 species and one unnamed of cestodes, 3 species and one unnamed of nematodes, and one acanthocephalan. Some critical notes are appended to the list.

R.T.L.

166—Annals of Applied Biology.

- a. ELLENBY, C., 1946.—"The influence of potato variety on the cyst of the potato-root eelworm, *Heterodera rostochiensis* Wollenweber." 33 (4), 433-446.
- b. CHEO, C. C., 1946.—"A note on the relation of nematodes (*Tylenchus tritici*) to the development of the bacterial disease of wheat caused by *Bacterium tritici*." 33 (4), 446-449.

(166a) Ellenby has confirmed and extended Gemmell's (1943) observations on the effect of the variety of potato on *Heterodera rostochiensis*. The cysts were produced under similar conditions on the roots of Arran Banner, Doon Star, Redskin and Kerr's Pink, and were tested in root excretions from the same 4 varieties. Significant differences were found in the numbers

of larvae hatched, due both to cyst type and root excretion type, but there was no correlation between the two factors. Most larvae hatched from the cysts produced on Arran Banner and fewest from the Doon Star cysts: root excretion from Redskin and Doon Star caused more hatching than that from the other 2 varieties. In the autumn tests only 31 larvae hatched from 9 out of 200 cysts from Doon Star, while in the following spring the same cysts yielded about 70 larvae each as compared with 253 from Redskin and 168 from Arran Banner cysts. Hatching from Doon Star cysts began 11 days after the start of the test as compared with 7 days for the other types of cyst. The cysts from Doon Star were significantly smaller than those from the other varieties, but differences in the numbers of larvae emerging were greater than could be explained by differences in cyst size. The number of eggs per unit volume of cyst is significantly smaller than in the other types. In cysts from Arran Banner and Redskin 67% of the total number of eggs hatched, but only 42% from Doon Star cysts. It is suggested that the differences exhibited in the cysts from the different host varieties may be caused by differences in the metabolism of the hosts or be due to factors concerned with the behaviour of the cysts as units, and not, as suggested by Gemmell, to any resistance of the host. M.T.F.

(166b) Cheo repeatedly failed to obtain bacterial disease in wheat plants grown in soil inoculated with *Bacterium tritici* alone—the disease only occurred when nematode galls (caused by *Anguillulina tritici*) were also added. Hypodermic injections of bacterial suspensions also failed to cause bacterial disease in wheat seedlings. The bacteria seem to be carried within the nematode galls, since surface sterilization of the galls did not reduce the incidence of bacterial disease caused when they were used as inoculum. The bacteria remain viable in the galls for $2\frac{1}{2}$ years. In the growing point of nematode-infected wheat plants, nematodes were always present where bacteria were found, but only bacteria were seen in the leaves. M.T.F.

167—Annual Report of the Department of Agriculture, New Zealand.

a. BARRY, W. C., 1946.—“Live-stock division. Report.” (1945-1946), pp. 9-21.

b. FILMER, J. F., 1946.—“Animal research division. Report.” (1945-1946), pp. 22-36.

(167a) Many tons of phenothiazine, which is superseding other remedies, are now used annually for all classes of young stock, but even with the best available treatment the best husbandry practices of sound feeding and management are essential. The recent drought conditions in many parts of the North Island, New Zealand, tended to lessen infestation in young stock, both of cattle and sheep. The importance of winter feeding is stressed. Worm infestation of weaned calves is a frequent cause of serious losses in New Zealand. The losses of ewes in parts of Canterbury are attributed to the drain of milk production on an insufficient diet which enables the worms to gain an upper hand. It is noteworthy that the provision of an effective medicine for the treatment of farmers' dogs does not appear to have lessened the incidence of hydatid. As compulsory dosing is considered to be impracticable the prospect of reduction is not hopeful. Liver-fluke and associated “black disease” is showing a tendency to spread in the Hawke's Bay district. R.T.L.

(167b) In New Zealand an inflammatory condition of the eye causing blindness frequently occurs in calves after treatment with phenothiazine. This keratitis is absent in dull weather or where the animals are protected from direct sunlight. The earliest symptom is weeping and the critical period is the day following dosing. In treated calves the blood and aqueous humour contain phenothiazine sulphoxide and phenothiazone. The radiations in the long ultra-violet 320-380 μ region are absorbed by phenothiazine sulphoxide which acts as the photosensitizing agent. A mixture of 1:9 of phenothiazine in a salt lick did not prove of benefit to sheep in a field experiment as the amount of phenothiazine taken was too low. R.T.L.

168—Annual Report of the Department of Agriculture, Uganda.

a. ANON, 1946.—“Soil conservation report for 1944. 5. Water supplies.” Part I—Administration, 1944-45, pp. 36-37.

(168a) Under "Water Supplies", the report states that "in view of the prevalence of Bilharzia and guinea-worm, an experimental step well measuring 50 feet square by 24 feet deep was constructed [in the Eastern Province] and 7 more of this type of well were commenced in localities where no boreholes exist. It remains to be seen whether this type of well will prevent infection by parasites."

R.T.L.

169—Archives de l'Institut Pasteur du Maroc.

- a. JOYEUX, C. & GAUD, J., 1946.—"Recherches helminthologiques marocaines. (Suite)." 3 (6), 383-461.

(169a) Joyeux & Gaud deal extensively with the history, geographical distribution, morphology, lesions, development and intermediate hosts of the lungworms *Protostrongylus rufescens*, *Cystocaulus ocreatus* and *Muellerius minutissimus* which give rise to verminous pneumonia. Of these *P. rufescens* and *M. minutissimus* are rare while *C. ocreatus* occurs everywhere in sheep and goats in Morocco. *Euparypha pisana* and *Cochlicella acuta* are the probable natural intermediaries.

R.T.L.

170—Archives of Internal Medicine.

- a. WRIGHT, D. O. & GOLD, E. M., 1946.—"Löffler's syndrome associated with creeping eruption (cutaneous helminthiasis). Report of twenty-six cases." 78 (3), 303-312.

(170a) In 26 out of 52 cases of creeping eruption due to *Ancylostoma braziliense*, pulmonary lesions compatible with a diagnosis of Loeffler's pneumonia were observed by X-ray examination of the chest and were attributable to an antigenic response to the presence either of the larva or its exotoxin. Treatment of the cutaneous lesions consisted in the daily application of ethyl chloride spray for 30 seconds around the ends of the channels.

R.T.L.

171—Archives of Surgery.

- a. ROCHA E SILVA, M. & GRAÑA, A., 1946.—"Anaphylaxis-like reactions produced by Ascaris extracts. I. The changes in the histamine content and the coagulability of the blood in guinea pigs and in dogs." 52 (5), 523-537.
 b. ROCHA E SILVA, M. & GRAÑA, A., 1946.—"Anaphylaxis-like reactions produced by Ascaris extracts. II. The mechanism of the shock induced in dogs." 52 (6), 713-728.
 c. ROCHA E SILVA, M., PORTO, A. & ANDRADE, S. O., 1946.—"Anaphylaxis-like reactions produced by Ascaris extracts. III. The role played by leukocytes and platelets in the genesis of the shock." 53 (2), 199-213.

(171a) Rocha e Silva & Graña made an extract of *Ascaris lumbricoides* by grinding up the worms and treating the pulp with trichloroacetic acid. This was followed by dialysis through cellophane and neutralization by means of sodium carbonate. Injections of this extract produced shock in dogs, indistinguishable from anaphylactic shock. There was engorgement of the liver and the histamine of the liver was discharged into the venous circulation, being found mainly in the portal vein. The pressure in the portal system was increased. The coagulability of the blood was reduced due to the discharge of heparin. It is possible that the animals had been previously sensitized as a result of the presence of gastro-intestinal parasites, suggesting that there is a substance in more than one species capable of acting as a toxin and that the action is not entirely specific. This extract produced emphysema and death in guinea-pigs. The authors believe that it is not possible to distinguish between allergy and experimental anaphylaxis.

P.A.C.

(171b) Following up their previous work Rocha e Silva & Graña show that extracts of *Ascaris lumbricoides* are not capable, by themselves, of causing the discharge of histamine from the liver into the blood stream when injected into dogs which had previously been sensitized by cutaneous injections of Ascaris material, and the livers afterwards perfused by defibrinated blood or Tyrode's solution. However, under similar circumstances trypsin or mercuric chloride cause discharge of considerable amounts of histamine. Some dogs showed an unusual mechanical shock following injection of Ascaris extracts. There was a rise in the pressure in the carotid artery due, apparently, to the mechanical blockage of the hepatic vessels by clumped

leucocytes and platelets but without much discharge of active substances. Intravenous liver glycogen may neutralize the sensitization of the animal to *Ascaris* extract; it causes severe leucopenia and removes the platelets from the circulating blood. P.A.C.

(171c) From previous work it has been shown that shock resulting from injections of *Ascaris* extracts cannot be distinguished from true anaphylactic shock and probably has the same mechanism. The authors of this article show that the blood of the dog contains all the factors necessary for the release of histamine and heparin from the liver when *Ascaris* extracts are added. When an isolated liver is perfused with citrated whole blood in paraffined receptacles, there is a decrease in leucocytes and platelets and both histamine and heparin are released into the perfused blood. Microscopic examinations of liver smears show enormous aggregates of platelets which disappear in the later stages of shock. Trypsin disappears from the blood plasma during shock, due probably to the release of heparin into the blood stream. P.A.C.

172—Arquivos de Biologia. São Paulo.

- a. ANON, 1946.—“Como proceder a colheita de material para a pesquisa de ovos em casos suspeitos de enterobiose (oxiurose).” 30 (272), 49–51.

(172a) The NIH technique for the examination of suspected cases of *Enterobius* infection is described. R.T.L.

173—Auk.

- a. COWAN, I. McT., 1946.—“Death of a Trumpeter Swan from multiple parasitism.” 63 (2), 248–249.
b. HARTMAN, F. A., 1946.—“Notes on the pathology of a loon and a pelican.” 63 (4), 588–589.

(173a) In a sick Trumpeter Swan (*Cygnus buccinator*) there were 952 tapeworms of an apparently undescribed *Hymenolepis*, 6 *Zygocotyle lunatum*, 5 *Echinostomum revolutum* and one *Orchipeum tracheicola*, now recorded for the first time. In the heart muscle there were 25 filarial worms, *Sarconema eurycerca*, also a first record for this host. R.T.L.

(173b) Paralysis in a well nourished White Pelican (*Pelecanus erythrorhynchos*) is attributed to the toxins absorbed from hundreds of unidentified nematodes in the stomach. R.T.L.

174—Australian Veterinary Journal.

- a. MacMANAMNY, L. F., 1946.—“The control of internal parasites in dogs.” 22 (6), 202–204.
b. PULLAR, E. M., 1946.—“The control of internal parasites in dogs.” 22 (6), 204–206. [Discussion p. 206.]

(174a) Approaching the subject from the standpoint of the kennel or flock dog rather than from that of the individual dog, MacManamny briefly deals with arecoline hydrobromide, Nemural and Taenaline for cestodes, tetrachlorethylene, oil of chenopodium and Butylphen for ascarids, tetrachlorethylene and Butylphen for hookworms, and diphenylamine and sodium arsenite (enema) for whipworms. R.T.L.

(174b) In the majority of cases arecoline and Nemural are prompt and reliable for the removal of cestodes in dogs but occasionally fail. Pullar suggests the use of milk and treacle as a vehicle for either. *Diphylobothrium erinacei* is reported to be very common in Gippsland foxes and occasionally in cats in Australia. In immune pregnant animals migrating ascarid larvae may reach the foetus and remain in the trachea and pharynx until after birth. Raw vegetables, particularly carrots, will usually rid young puppies of massive infestations. *Ancylostoma caninum* in Australia is almost entirely restricted to the summer rainfall area of which Sydney is the southern limit. *Uncinaria stenocephala*, which occurs in 20% of dogs in Melbourne and is common in rural areas, is a “cold climate” hookworm. For *Trichuris vulpis*, diphenylamine is useful but very erratic. R.T.L.

175—Biological Bulletin.

- a. REID, W. M., 1946.—“Penetration glands in tapeworm onchospheres.” [Abstract of paper presented at the Marine Biological Laboratory, August, 1946.] 91 (2), 232.

(175a) A pair of penetration glands have been noted for the first time in the oncospheres of *Raillietina cesticillus*, *Choanotaenia infundibulum* and *Hymenolepis* sp. They stain best with Nile-blue sulphate and neutral red. The glands stretch to the posterior end while the secretion pores are located slightly to the side of, and above, the middle pair of hooks. Each gland has a single nucleus and contains a granular substance. R.T.L.

176—Biological Reviews.

- a. STUNKARD, H. W., 1946.—“Interrelationships and taxonomy of the digenetic trematodes.” 21 (4), 148-158.

(176a) As adaptive modifications in the Trematoda, induced by changes in nutrition, physiology, life-cycles and development, have resulted in convergent and divergent evolution, considerations of morphology and development lead Stunkard to the conclusion that the higher taxonomic units of the Digenea have little phylogenetic or systematic significance. He proposes, therefore, that the orders Gasterostomata and Prosostomata and the suborders Amphistomata, Distomata, Monostomata, Strigeata, Bucephalata, Schistosomata and Clinostomata should be suppressed. Classification of larval stages has proved less sound than that of adults. A natural system of classification of the trematodes must be based on their evolutionary history. R.T.L.

177—Bird-Banding.

- a. WAGNER, E. D., 1946.—“Blood parasites of the magpie and English sparrow of eastern Washington.” 17 (2), 72-74.

(177a) Three different types of microfilariae were found in 17 out of 22 adult magpies, *Pica pica hudsonia*, and a microfilaria in 2 out of 8 *Passer domesticus*. R.T.L.

178—Brasil-Medico.

- a. LOBO, R., 1946.—“A profilaxia da esquistosomose na Bahia.” 60 (1/2), 9-14.
b. JANSEN, G., 1946.—“Experiências sobre a profilaxia da esquistosomose mansoni no estado de Pernambuco. Nota prévia.” 60 (20/21), 177-179.

(178a) Schistosomiasis is very common in Bahia, particularly in the north, south and south-eastern districts. The high incidence would appear to be due largely to lack of sanitation in the homes and in the schools, and to the ignorance and carelessness of the population. Lobo suggests that much control could be effected by the provision of latrines, by free treatment and by specific education of the public. The snail population could be reduced by the use of copper sulphate in water tanks and wells. P.A.C.

(178b) Attempts to control the incidence of *Schistosoma mansoni* in the municipality of Catende have followed 4 main lines: direct attack on the vectors, treatment of carriers, provision of and control of such places as public baths, and the provision of sanitation in houses. The use of lime reduced considerably the numbers of *Australorbis* in the rivers. Of several antimony substances used in the medication of human carriers, tartar emetic was the most successful, bringing about cures in 85%. Stibetine was 56.8% effective when used intravenously but only 14.3% when given by the intramuscular route. With intramuscular Antimonyl 41% were cured, but used intravenously only 33.3% were cured. Intramuscular Stibetine was less successful, being only 22% effective. Public baths and wash houses were constructed as well as a number of latrines for houses. P.A.C.

179—British Journal of Ophthalmology.

- a. BADIR, G., 1946.—“Schistosomiasis of the conjunctiva.” 30 (4), 215-221.
b. PACHECO-LUNA, R., 1946.—“Notes on oncocerciasis in Guatemala.” 30 (4), 234-237.

(179a) Hitherto 9 cases of schistosomiasis of the conjunctiva have been reported. In this new case of a tumour of the palpebral conjunctiva of the upper eyelid, Badir found not only terminal-spined bilharzia ova but also adult worms. The latter were lying in a dilated orbital vein. R.T.L.

(179b) Onchocerciasis in Guatemala results in tumour formation and in ocular changes

due to a chronic process of sclerosis which sometimes ends in blindness, the early symptoms being severe photophobia, keratitis or plastic iritis. Eventually the eye is reduced to a stump. Very occasionally there are cutaneous manifestations. Early surgery of the tumours relieves the photophobia but the lesions persist. R.T.L.

180—Bulletin de l'Académie Vétérinaire de France.

- a. SALOMON, Louis & SALOMON, Léone, 1946.—“ Sur l'emploi combiné du vert brillant et du violet de gentiane dans le traitement de la strongylose gastro-intestinale du mouton.” 19 (3), 93-96.

(180a) Salomon & Salomon have shown experimentally that a mixture of brilliant green and gentian violet is useful for gastro-intestinal helminths of sheep. Their most successful method was to give 3 treatments: 4 capsules, each containing 0.03 gm. of both drugs with a mixture of calcium phosphate and calcium carbonate, were administered daily in the food for 8 days followed by 7 days' rest. There was a sharp fall in the number of ova passed in the faeces immediately after the first treatment was begun and no difficult symptoms arose. P.A.C.

181—Bulletin de l'Institut Océanographique de Monaco.

- a. DOLLFUS, R. P., 1946.—“ Sur un distome parasite de *Mullus surmuletus* L. et peut-être attribuable au genre *Holorchis* M. Stossich 1900 [Trematoda].” 43 (896), 7 pp.

(181a) The distome from the intestine of the red mullet described by Dollfus is in some respects similar to *Holorchis pycnopus* Stossich, and is characterized by having a spiny cuticle, testes near together, a coiled vesicula seminalis externa leading to a large cirrus-pouch but lacking a cirrus. The lobed ovary is separated from the anterior testis by the main bulk of the uterine coils, and the well developed vitellaria fill a rather long post-testicular space. Provisionally it is placed in Aephnidiogeninae Yamaguti (emended orthography)—and possibly in Lepocreadiidae: it is designated *Holorchis legendrei* n.sp. until its status can be verified by the redescription of the genotype material. N.G.S.

182—Bulletin of the Johns Hopkins Hospital.

- a. BILLINGS, F. T., WINKENWERDER, W. L. & HUNNINEN, A. V., 1946.—“ Studies on acute Schistosomiasis japonica in the Philippine Islands. I. A clinical study of 337 cases with a preliminary report on the results of treatment with fuvadin in 110 cases.” 78 (1), 21-56.
b. BROWN, T. McP., STIFLER, Jr., W. C. & BETHEA, Jr., W. R., 1946.—“ Early filariasis.” 78 (3), 126-154.
c. CARROLL, D. G., 1946.—“ Cerebral involvement in Schistosomiasis japonica.” 78 (4), 219-234.

(182a) 337 cases of Schistosomiasis japonica, contracted by American personnel in the Philippines, have been studied by the authors and reported upon in considerable detail. A special modification of the sedimentation method of finding eggs in the stools was used. Of 110 patients who were treated with Fouadin, 19 (i.e. 17.2%) passed viable eggs within 8 weeks of the completion of the course. R.T.L.

(182b) Early symptoms of filariasis as observed in American personnel in the South Pacific are lymphangitis, pain and swelling of the scrotal contents, lymph nodes and extremities of short duration but recurring at irregular intervals. Many of these signs and symptoms are suggestive of an allergic mechanism. Skin test reactions could not be correlated with clinical manifestations. R.T.L.

(182c) Heretofore 8 cases of cerebral schistosomiasis have been reported. Carroll now adds 5 cases all of which occurred within 7 months of exposure to infection at Leyte. All showed involvement of the pyramidal tract with symptoms of confusion, stupor or personality changes. Improvement followed therapy. Schistosome eggs were found in the stools. R.T.L.

183—Bulletin. Kentucky Agricultural Experiment Station.

- a. DOLL, E. R. & HULL, F. E., 1946.—“ Survival of nematode parasites of sheep on pasture during summer.” No. 482, 4 pp.

(183a) In Kentucky, exposure on pasture from mid-June to the end of September resulted in the death of all the commoner nematode larvae with the exception of those of *Nematodirus filicollis*. The keeping of pasture free from sheep for 3 to 3½ months should afford a practical control during the summer while pasture rotation and the use of phenothiazine should materially improve its efficacy.

R.T.L.

184—Bulletin. Ministry of Agriculture and Fisheries. London.

a. HODSON, W. E. H., 1946.—“Narcissus pests.” No. 51, 33 pp.

(184a) Hot-water treatment will eradicate stem and bulb eelworm from infested narcissus bulbs but other aspects of the problem require attention, viz., the infested soil—an interval of at least 18 months must intervene after the last stray bulb has been taken out; infested weeds must be eradicated by systematic cultivation; any convenient crop, except onions, iris, polyanthus and strawberry, may be substituted during the interval; bulb land must be adequately drained. When eelworms are detected in growing bulbs the entire stock should be lifted as soon as the condition of the foliage makes this possible and the bulbs should be treated very soon after lifting. There is at present no scientific proof that immersion of infected bulbs in proprietary fluids is an effective remedy. [A revision of the 2nd edition (1939)—see Helm. Abs., Vol. 8, No. 483a.]

R.T.L.

185—Bulletin de la Section Scientifique de l'Académie Roumaine.

a. NITZULESCU, V., 1946.—“Sur un oxyuridé parasite des spermophiles en Roumanie.” 28 (6), 381-385.

(185a) From *Citellus citellus* in Rumania the author redescibes *Oxyuris triradiata*. The eggs have a long filament at each pole. There are cuticular bosses around the vulvar opening.

R.T.L.

186—Bulletin de la Société d'Histoire Naturelle de l'Afrique du Nord.

a. COURT, R. & SAQUENET, A., 1946.—“Liste préliminaire des nématodes parasites des moutons d'Algérie.” (1945), 36 (1/7), 75-78.

b. COURT, R., 1946.—“Les *Trichostrongylus* (nématodes strongylides) parasites du mouton algérien.” (1945), 36 (8/9), 111-131.

c. SAQUENET, A., 1946.—“Les nématodes parasites des genres *Ostertagia* et *Camelostomylus* chez le mouton d'Algérie.” (1945), 36 (8/9), 132-157.

(186a) Nineteen species of helminths are listed as definitely known to occur in sheep in Algeria.

R.T.L.

(186b) *Trichostrongylus colubriformis*, *T. probolurus*, *T. extenuatus* and *T. vitrinus*, commonly found in sheep in Algeria, are described. A table is provided for the differentiation of the eight known species of this genus. The spicules are illustrated.

R.T.L.

(186c) Descriptions are given of *Ostertagia* (*Ostertagia*) *ostertagi*, *O. (O.) circumcincta* and *O. (O.) ? trifurcata* found in sheep in Algeria. The last-named species is very similar to *O. (O.) pinnata*. A table for the differentiation of nine of the twelve known species of *Ostertagia* is appended. The subgenera *Grossospiculagia* and *Marshallagia* are represented in Algeria by *O. (G.) occidentalis* and *O. (M.) marshalli* but are rarely found. *Camelostomylus mentulatus* is constantly found in camels and diomedaries, and in Algeria is frequently found also in sheep and goats.

R.T.L.

187—Bulletin de la Société Linnéenne de Normandie.

a. JACQUET, J., 1946.—“Nouvel aspect d'œufs de Strongylidés.” 9e Série, 4, 14-15.

(187a) Jacquet describes an egg found in a faecal examination of a bovine suffering from parasitic diarrhoea. Its general size and conformation suggested a strongyle but it differed from the usual strongyle egg in that there was only a single cell.

P.A.C.

188—Bulletin de la Société de Pathologie Exotique.

- a. LAURANS, R., 1946.—“Note sur la résistance des larves de strongylinés et trichostrongylinés du mouton à quelques agents de destruction.” 39 (9/10), 354–360.
- b. MARCOTORCHINO, M., 1946.—“La bilharziose en Casamance. Réflexions d'un médecin ‘de brousse’.” 39 (9/10), 361–364.

(188a) Laurans describes a method of faecal culture of sheep strongylid and trichostrongylid larvae for experimental purposes. Observations were made on the effects of cold and drying upon the larvae, on their geotropic and phototropic behaviour and on their resistance to the action of CuSO_4 in different concentrations. The percentage rate of survival of the larvae, after exposure to CuSO_4 , was found to be a function of the degree of concentration of the salt. The larvae exhibited a rapidly rising percentage survival rate in accordance with the regular decrease in concentration from the lethal dose. J.J.C.B.

(188b) Marcotorchino deals briefly with Bilharzia infections, chiefly due to *S. haematobium*, in Casamance, a province of Senegal. In the region of Kolda, *Bulinus* sp. are frequent and 80% of the children are infected while at Sedhiou, where these molluscs are relatively rare, the incidence is 12%. Emetin, which alone was available, gave considerable relief to the symptoms of cystitis but did not effect a cure. R.T.L.

189—Bulletin of the Torrey Botanical Club.

- a. DRECHSLER, C., 1946.—“A species of *Harposporium* invading its nematode host from the stoma.” 73 (6), 557–564.

(189a) Drechsler gives an illustrated and detailed description of *Harposporium bysmatosporum* n.sp., a hyphomycetous fungus which destroys nematodes of the genus *Rhabditis*. Infection of the latter takes place by the lodgement of a conidium within the stoma of the nematode and from this a hypha grows into the body and destroys its contents. The new fungus originated from decaying straw of *Hordeum vulgare* near Greeley, Colorado, U.S.A. T.G.

190—Bulletin of the United States Army Medical Department.

- a. NELSON, E. C. & BAYLISS, M., 1946.—“Schistosomiasis japonica—laboratory diagnosis.” 5 (6), 673–680.

(190a) The sedimentation test is the most reliable method of examination for *Schistosoma japonicum* eggs in faeces. An effective, rapid, continuous-flow funnel technique is described and illustrated. Hatching is a valuable supplement and gave positive results after 4 stools had been negative to sedimentation. The zinc sulphate flotation and the acid-ether extraction method both proved unreliable. In late chronic cases eggs are few or absent. R.T.L.

191—Canadian Field Naturalist.

- a. CLARKE, C. H. D., 1946.—“Some records of blood parasites from Ontario birds.” 60 (2), 34.

(191a) The principal blood infections which occur in Ontario birds are protozoal but microfilariae are recorded, but not described, in the black duck and evening grosbeak from Brule Lake, the olive-sided flycatcher, the hermit thrush, olive-backed thrush, crow blackbird and white-throated sparrow from Frank's Bay, black-billed cuckoo from Goderich, crow from Portageville, red-winged blackbird from Pottageville and Minesing, and hooded merganser from Buckshot Lake. R.T.L.

192—Canadian Journal of Research. Section D, Zoological Sciences.

- a. MILLER, R. B. & WATKINS, H. B., 1946.—“An experiment in the control of the cestode, *Triaenophorus crassus* Forel.” 24 (6), 175–179.

(192a) As the coracidia of *Triaenophorus crassus* are killed in the laboratory by increasing the acidity of the culture medium to pH 5, an attempt was made to control the infection in Baptiste Lake, Alberta, by acidifying the lake with sulphuric acid. This, however, proved unsuccessful owing probably to the neutralizing effect of the mud. R.T.L.

193—Cancer Research. Philadelphia.

- a. DUNNING, W. F. & CURTIS, M. R., 1946.—“Multiple peritoneal sarcoma in rats from intraperitoneal injection of washed, ground *Taenia* larvae.” 6 (12), 668–670.

(193a) *Cysticercus fasciolaris*, when washed, ground and injected intraperitoneally into rats, produced multiple peritoneal sarcomata. The active agent is thought to be associated with the calcium carbonate corpuscles of the parasite.

R.T.L.

194—Ciencia. Mexico.

- a. BORDAS, E., 1946.—“Algunas técnicas para la obtención de preparaciones de parasitología.” 7 (4/6), 137–139.

195—Circular. South Dakota Agricultural Experiment Station.

- a. HARSHFIELD, G. S. & CARLSON, F. N., 1946.—“Controlling internal parasites of sheep.” No. 64, 8 pp.

(195a) Helminth infection is the worst hazard in the raising of sheep in South Dakota and the total annual loss is estimated at many thousand dollars. The various factors affecting parasitic infestation are discussed under age, nutrition, and range rotation. Few, if any, of the eggs and larvae of *Haemonchus contortus* survive the winter in the pastures of South Dakota. The greatest source of infection of lambs is the winter carry-over in the ewes. The programme of parasite control outlined comprises: adequate nourishment at all times; treatment of the breeding flock during the winter; early lambing; the use of winter range for summer grazing only in the latter part of the summer; change of pasture at intervals of not longer than one week, a used range to remain vacated for at least one month; phenothiazine-salt mixture to be accessible to ewes and lambs throughout the grazing season.

R.T.L.

196—Comptes Rendus (Doklady) de l'Académie des Sciences de l'URSS.

- a. DOGUEL, V. A. & VOLKOVA, M. M., 1946.—“Sur le cycle vital du *Diplocotyle* (cestodes Pseudophyllidae).” 53 (4), 385–387.
 b. CHERTKOVA, A. N., 1946.—“A new filaria from the internal media of the eye in birds.” 53 (9), 863–865.
 c. SKRJABIN, K. I., 1946.—“A new revision of the taxonomy of the nematodes Spirurata parasitizing in fishes.” 54 (8), 751–752.

(196a) Doguel & Volkova describe plerocercoids found in *Gammarus locusta* in Kharlovsk. They belong, apparently, to a species of *Diplocotyle* but they were not able to establish the species. The plerocercoids were of large size, and contained up to 140 genital systems which had attained adult size and development but which did not contain embryonated ova in the uterus. These plerocercoids resemble somewhat *Diplocotyle nylandica*, a parasite of *Pleurometes* spp., but the authors are not willing to identify them definitely as this species.

P.A.C.

(196b) Chertkova describes *Skrjabinocta petrowi* n.g., n.sp., a nematode parasite of the internal chamber of the eye of *Streptopelia orientalis meena* in South Kirghizia. The genus forms part of the Aproctinae and approximates most closely to the genus *Aprocta*. It can be distinguished, however, by the possession of 4 pairs of cephalic suckers arranged in a double row, by its elongated oesophagus and the presence of a number of post-anal suckers. It is viviparous.

P.A.C.

(196c) The Spirurata of fishes must be distributed into at least 3 subfamilies, viz., Rhabdochoninae, Cystidicolinae n.subfam. and Spinitectinae n.subfam. Rhabdochoninae, containing *Rhabdochona* and *Sterliadochona*, has a smooth cuticle and eggs without filaments. Cystidicolinae contains *Cystidicola*, *Capillospirura*, *Metabronema*, *Comephoronema* and *Pseudocystidicola* which have a smooth cuticle and eggs with polar filaments. Spinitectinae includes only *Spinitectus*, characterized by transverse chitin rings with sharp spines pointing backwards. These 3 subfamilies are collected into Rhabdochonidae n.fam. which have a thin delicate body, mouth opening into a funnel-shaped oral cavity, a clear-cut double oesophagus, unequal and

dissimilar spicules and numerous post-anal papillae. They occur in fishes. The genera *Ichtyobronema*, *Cottocomephoronema* and *Haplonema* call for further study. R.T.L.

197—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R. & SCHEMPP, E., 1946.—“Phenothiazin in fraktionierter Dosierung als Wurmmittel.” 53 (5/6), 40–41.
- b. HARTWIG, S. & KÖHLER, H., 1946.—“Habronemosis der Haut (Sommerwunden) beim Pferd.” 53 (7/8), 57–59.

(197a) After extensive trials (results with a total of 994 horses were studied) Wetzel & Schempp are convinced of the advantages of administering doses of phenothiazine to horses in three parts on three successive days. Recrystallized phenothiazine was given in the feed in the early morning as follows: foals and yearlings, three doses of 5 gm. each; 2-year-olds, three doses of 7 gm. each; other horses, three doses of 10 gm. each. No special preparation of the animals was necessary. Loss of appetite, digestive disturbances and high temperature were not observed, and working ability was unimpaired. A special study of the blood of some of the horses showed in the majority an 8% to 10% decrease in erythrocytes, but within three weeks the blood picture was normal. The efficacy of phenothiazine against strongyles (97% to 100%) was increased rather than otherwise by the divided dose. A.E.F.

(197b) Hartwig & Köhler describe 5 cases of summer sores in horses which, in the intermediate phase, showed a dermatitis with the formation of a series of parallel folds in the skin. The histology of the condition, characterized by an extraordinarily strong infiltration of the granulation tissue with granulocytes, is described in some detail. Radical excision of the affected skin area seems to be the only treatment. The nematode involved could not be specifically identified but is assumed to be a *Habronema*. A.E.F.

198—East African Medical Journal.

- a. YOUNG, W. A., FARR, A. G. & McKENDRICK, A. J., 1946.—“A report of the occurrence of onchocerciasis in Mahenge, Tanganyika, and in southern area of Lake Victoria.” 23 (11), 351–353.

(198a) Cases of human onchocerciasis are reported from two previously unrecorded areas in Tanganyika, viz., (i) from Ruondo Island to the south-west of Lake Victoria, in an African male aged 50 years: it is thought that the original infection may have been incurred in the Bukoba Coastal region; (ii) several cases in Africans on or around the Mahenge massif in the eastern province of Tanganyika. J.J.C.B.

199—Entomologist's Monthly Magazine.

- a. PHILLIPS, S. M., 1946.—“Occurrence of nematodes in a collembolan.” 82 (988), 218–219.

(199a) Phillips records the finding of two nematodes, which she considers to be immature mermithids, in *Neanura grassei* (Denis) found in Cornwall. The worms were coiled spirally under the cuticle at the anterior end of the mesothorax. The host was atypical in being larger than usual and in having no reticulations on the body. M.T.F.

200—Farm Research. New York State and Cornell Agricultural Experiment Stations.

- a. NEWHALL, A. G., 1946.—“Golden nematode of potatoes jumps the Atlantic.” 12 (3), 6–7.

(200a) Newhall gives a popular account of *Heterodera rostochiensis*, its occurrence on potatoes in Nassau County, Long Island, its life-history and the measures being adopted to control it. T.G.

201—Farmers' Bulletin. U.S. Department of Agriculture.

- a. HALL, M. C., DIKMANS, G. & WRIGHT, W. H., 1946.—“Parasites and parasitic diseases of sheep.” No. 1330, 49 pp. [Revision of 1944 edition.]

202—Harefuah.

- a. DOSTROVSKY, A. & SAGHER, F., 1946.—“The relationship between ‘eosinophilic erythredema’ and filariasis.” 30 (2), 33–34. [In Hebrew: English summary p. 34.]

(202a) The relationship between eosinophilic erythroedema and filariasis was not clarified by intracutaneous tests with *Dirofilaria immitis* antigen on 44 persons, as in 32 controls suffering from all kinds of dermatological diseases the non-specificity of the test was high. R.T.L.

203—Idaho Farmer.

- a. BLODGETT, E. C., 1946.—“Potato industry opens war on nematodes.” 64 (1), 3, 21.

(203a) Blodgett sets out the organizational method whereby the Nematode Control Committee, which was set up early in 1945, hopes to control the spread of the potato rot nematode *Ditylenchus destructor* Thorne. The article is a semi-popular one for the benefit of the farming community and invites their co-operation in carrying out measures designed to check the spread of the nematode to regions in the vicinity of Aberdeen, Idaho. T.G.

204—Indian Journal of Medical Research.

- a. MUKERJI, A. K., BHADURI, N. V. & NARAIN, S., 1946.—“Experiments on the transmission of human schistosomiasis in India.” 34 (2), 311–315.

(204a) A series of experiments failed to implicate the common Indian molluscs *Acrostoma variable*, *Bithynia pulchella*, *Gyraulus convexiusculus*, *Indoplanorbis exustus*, *Limnaea luteola*, *Melanoides lineatus*, *M. tuberculatus* and *Vivipara bengalensis* as intermediate hosts of *Schistosoma haematobium* or *S. mansoni*. As a large body of West African troops was stationed in the Ranchi area, and 2,061 out of 22,317 were passing eggs of *S. haematobium* and 38 those of *S. mansoni*, repeated examination of the local population for schistosomiasis is suggested as a long-term policy. R.T.L.

205—Indian Journal of Veterinary Science and Animal Husbandry.

- a. MAQSOOD, M., 1946.—“Echinococcosis in bovines.” 16 (1), 28–31.
b. SHARMA, G. K. & HUSSAIN, A., 1946.—“A note on guinea-worm infection in dogs.” 16 (1), 31–32.

(205a) At Lahore 66.1% of 62 cattle, and 68.8% of 340 buffaloes harboured hydatid cysts. The incidence of the cysts in the various organs is tabulated. The cysts in the liver and lungs were mostly sterile; those in the heart were generally fertile and, when of large size, caused sudden death from cardiac disturbances. R.T.L.

(205b) Although guinea-worm is very common in man in some parts of India, it is seldom found in dogs. Sharma & Hussain record its presence in a dog in Lahore. R.T.L.

206—Indian Medical Gazette.

- a. RAI, B. B., 1946.—“Sulphapyridine and sulphathiazole as helminthagogue.” [Correspondence.] 81 (10), 447.
b. FAROOQ, M. & QUTUBUDDIN, M., 1946.—“Epidemiology of filariasis in certain parts of H.E.H. the Nizam’s State.” 81 (11), 470–474.

(206a) As patients treated for various diseases with sulphapyridine and sulphathiazole passed dead roundworms and hookworms, Rai suggests that these drugs may prove to be vermifuges. R.T.L.

(206b) In the area surveyed the average disease rate with filariasis was 1.6%. Of the 692 cases recorded, elephantiasis of the leg accounts for 88%; of the hand alone 2.16%; of hand and leg 2.85%; of scrotum alone 2.85%; and of scrotum and leg 1%. Of 722 persons examined for filarial infestation 12% were positive, the predominant infection being *Mf. bancrofti* (92.4%) while the remaining 7.6% were *Mf. malayi*. The vector of *Wuchereria bancrofti* is believed to be *Culex fatigans*. J.J.C.B.

207—Journal of Animal Ecology.

- a. FROST, W. E., 1946.—“Observations on the food of eels (*Anguilla anguilla*) from the Windermere catchment area.” 15 (1), 43–53.
- b. VAN SOMEREN, V. D., 1946.—“The habitats and tolerance ranges of *Lymnaea (Radix) caillaudi*, the intermediate snail host of liver fluke in East Africa.” 15 (2), 170–197.

(207a) Parasitic worms met with during Miss Frost's investigations on the food of eels in the Windermere area were identified by Baylis as *Raphidascaris cristata* and *Bothriocephalus claviceps*. *Echinorhynchus truttae* and a *Diplostomum* sp. were identified by Miss M. R. Young.
R.T.L.

(207b) Van Someren describes the various types of habitat available for *Limnaea caillaudi* in East Africa and indicates those which are favoured by the snail. The biological, physical and chemical factors involved in such habitat preferences are discussed.
J.J.C.B.

208—Journal of Comparative Pathology and Therapeutics.

- a. SPRENT, J. F. A., 1946.—“Some observations on a disease of Zebu cattle associated with infestation by the hookworm, *Bunostomum phlebotomum*.” 56 (3), 149–159.
- b. HARBOUR, H. E., MORGAN, D. O., SLOAN, J. E. N. & RAYSKI, C., 1946.—“Trials with phenothiazine-salt mixtures for the prevention of parasitic gastritis in lambs.” 56 (3), 180–195.
- c. SPRENT, J. F. A., 1946.—“Immunological phenomena in the calf, following experimental infection with *Bunostomum phlebotomum*.” 56 (4), 286–297.

(208a) Sprent records his observations on a disease of yearling Zebu cattle in Northern Nigeria. This occurs in the dry season (January to April) and the symptoms and lesions resemble those associated with infestations of *Bunostomum phlebotomum*. The evidence supporting the view that the disease is due to this hookworm is also based on the fact that the incidence of the disease coincides with the period when heavy infestations with the worm are found. The paper contains a detailed account of post-mortem findings, the pathological histology of various organs and the blood picture of the diseased animals.
D.O.M.

(208b) After some preliminary trials on weaned hill lambs, Harbour and his co-workers extended their tests on phenothiazine-salt mixture to include lambs running with their mothers on first-year grass (1944) and on second-year grass (1945). The lambs were divided into 3 groups: (i) treated with phenothiazine, (ii) having access to phenothiazine-salt mixture, (iii) untreated controls. Records were kept of weight gains, worm egg counts and the number of worm larvae per unit weight of grass. In the trial on first-year grass the phenothiazine groups showed only a slight advantage over the controls and the level of the worm infestations remained low. In the following year the plots which were then in second-year grass gave high pasture larval counts, and significantly greater weight gains were obtained in the phenothiazine groups than in the control. The authors conclude that phenothiazine licks might prove useful in keeping pasture contamination at a low level, thus avoiding frequent dosing of lambs on heavily stocked young grass. They emphasize, however, the need of further research before the tentative scheme of management suggested in the paper could be generally recommended for use in Britain.
D.O.M.

(208c) Sprent carried out experimental cutaneous infections with larvae of *Bunostomum phlebotomum* in 6 Zebu calves. Local vascular changes, neutrophile infiltration and scab formation resulted; their extent and rapidity of onset increased with successive reinfections. The calves became sensitized to extracts of adult parasite. Forty days after the commencement of the experiment, the serum of a calf infected twice weekly gave a positive ring test with extract of adult worms. The resistance to infection acquired is attributed partly to cellular and partly to humoral factors. The cellular mechanism is in the skin and at the site of attachment of the adult in the intestine, and it is suggested that resistance is not fully developed until antibodies appear in the plasma and tissue fluid.
R.T.L.

209—Journal of the Department of Agriculture. Victoria.

- a. PITMAN, H. A. J., 1946.—“Eelworm scab of potatoes.” 44 (12), 581-584.
 b. PREWETT, L. P., 1946.—“Roundworms in swine.” 44 (12), 587.

(209a) Pitman gives an illustrated account of eelworm scab of potatoes due to *Heterodera marioni*, which in many potato-growing districts of Victoria causes considerable damage to potato tubers. The parasite also attacks a number of weeds of pasture and arable soils. A brief account of the life-history of the parasite is given and a number of control methods are discussed. Of these, the most promising is bare fallow with rigorous weed eradication. When rotations are practised it is preferable to grow summer cereals such as spring-sown oats, followed by a winter cereal such as rye, which is ploughed in or fed off. The potato variety “Snowflake” is highly resistant to attack and gives clean tubers but the use of this variety is not advised since the true roots are attacked and consequently the parasite is not eradicated. Infected tubers planted as seed may give a clean crop in the season of planting but they undoubtedly serve to infest the soil and should be avoided.

T.G.

210—Journal of the Elisha Mitchell Scientific Society.

- a. HARKEMA, R., 1946.—“The Metazoa parasitic in cotton rats of Wake County.” [Abstract of paper presented at the 43rd Annual Meeting of the North Carolina Academy of Science, May 3 and 4, 1946.] 62 (2), 142-143.

(210a) The helminths collected from 200 cotton rats in Wake County belonged to the following species: *Hymenolepis diminuta*, *H. microstoma*, *Railletina bakeri*, *Paranoplocephala omphalodes*, *Taenia taeniaeformis* (larval), *Longistriata adunca* and *Mastophorus muris ascaroides*. Harkema notes the absence of *Litomosoides carinii* and *Schizotaenia sigmodontis* in this survey.

R.T.L.

211—Journal of Infectious Diseases.

- a. OLIVER-GONZÁLEZ, J., 1946.—“Functional antigens in helminths.” 78 (3), 232-237.

(211a) Oliver-González has investigated some of the reactions of helminth isoagglutinogens, precipitinogens and anaphylactogens by a double feeding of *Ascaris lumbricoides* to rabbits, choosing those which had no group A specific substance in their erythrocytes. There was a considerable increase in the titres of α_1 and α_2 isoagglutinins and these could be absorbed from sera by treating with dry, ground cuticle. Guinea-pigs that were sensitized either actively or passively with adult worm material could be shocked by intravenous injections of coelomic fluid or saline extracts of *Ascaris* intestine.

P.A.C.

212—Journal of the Maine Medical Association.

- *a. MOOREHEAD, M. T., 1946.—“Roentgen therapy and trichiniasis: report of unusual case of trichiniasis treated with apparent success by irradiation with study of quality of X-rays used and review of subject.” 37, 141.

(212a) An extrathoracic tumour-like trichinous mass was rapidly and successfully treated by 500 roentgens, as measured in air. [From an abstract in J. Amer. Med. Ass., 131 (18), 1533.]

R.T.L.

213—Journal of Parasitology.

- a. INGALLS, Jr., J. W., 1946.—“The control of Schistosomiasis japonica. III. Studies on the longevity of cercariae of *Schistosoma japonicum* in saline solutions.” 32 (6), 521-524.
 b. HOLLANDS, R. A. & PALMER, E. D., 1946.—“Observations on the pathology of Schistosomiasis japonica: diagnosis by rectal crypt aspiration.” 32 (6), 525-528.
 c. KUNTZ, R. E. & STIREWALT, M. A., 1946.—“Effects of DDT on cercariae of *Schistosoma mansoni*.” 32 (6), 529-538.
 d. STUNKARD, H. W., 1946.—“Possible snail hosts of human schistosomes in the United States.” 32 (6), 539-552.
 e. OWEN, H. M., 1946.—“The life history of *Plagitura salamandra* Holl, 1928 (Trematoda: Plagiorchiidae).” 32 (6), 553-562.
 f. SCOTT, J. A., 1946.—“Observations on the rate of growth and maturity of *Litomosoides carinii*, a filarial worm of the cotton rat.” 32 (6), 570-573.

- g. ADDIS, Jr., C. J., 1946.—"Experiments on the relation between sex hormones and the growth of tapeworms (*Hymenolepis diminuta*) in rats." 32 (6), 574-580.
- h. ADDIS, Jr., C. J. & CHANDLER, A. C., 1946.—"Further studies on the vitamin requirement of tapeworms." 32 (6), 581-584.
- †i. AVERY, J. L., 1946.—"Incidence of parasitism in Navy personnel." 32, Suppl. p. 10.
- †j. LARSH, Jr., J. E., 1946.—"The relationship in alcoholic mice of reduced food intake and decreased resistance to *Hymenolepis*." 32, Suppl. p. 10.
- †k. LARSH, Jr., J. E., 1946.—"The use of vitamins in mice to prevent alcoholic debilitation to *Hymenolepis*." 32, Suppl. pp. 10-11.
- †l. FAUST, E. C., 1946.—"Effects of cold temperatures on the eggs of *Schistosoma japonicum*." 32, Suppl. p. 12.
- †m. WRIGHT, W. H., McMULLEN, D. B., FAUST, E. C. & BAUMAN, P. M., 1946.—"The distribution of Schistosomiasis japonica in Mindanao, Philippine Islands." 32, Suppl. p. 12.
- †n. ALICATA, J. E., 1946.—"Helminthic infection among natives of the Islands of Ponape and Truk, Eastern Carolines." 32, Suppl. pp. 12-13.
- †o. ROSE, H. M. & CULBERTSON, J. T., 1946.—"Treatment of loiasis with neostibosan." 32, Suppl. p. 13.
- †p. HAWKINS, P. A., 1946.—"Studies of sheep parasites. VII. *Moniezia expansa* infections." 32, Suppl. p. 14.
- †q. MAYHEW, R. L., 1946.—"Infection experiments with the hookworm *Bunostomum phlebotomum* in the calf." 32, Suppl. p. 14.
- †r. KRUG, E. S. & MAYHEW, R. L., 1946.—"Ova and free-living larval stages of *Bunostomum phlebotomum*, a hookworm of cattle." 32, Suppl. p. 14.
- †s. PORTER, D. A. & CAUTHEN, C. E., 1946.—"Experimental infection of calves with the small stomach worm, *Ostertagia ostertagi*." 32, Suppl. pp. 14-15.
- †t. ACKERT, J. E. & FOLSE, D. S., 1946.—"Moderate fowl ascarid infections predisposing chickens to bacterial toxin." 32, Suppl. p. 15.
- †u. ACKERT, J. E. & RIEDEL, B. B., 1946.—"Milk as a factor in fowl ascarid control." 32, Suppl. p. 15.
- †v. DOUGHERTY, E. C., 1946.—"A revised classification of the nematode suborder Strongylina." 32, Suppl. pp. 15-16.
- †w. KUNTZ, R. E. & STIREWALT, M. A., 1946.—"Method for testing fabrics and ointments to determine their effectiveness as barriers to schistosome cercariae." 32, Suppl. p. 16.
- †x. STIREWALT, M. A. & KUNTZ, R. E., 1946.—"Two molluscicides of promise." 32, Suppl. p. 16.
- †y. BROOKS, F. G., 1946.—"Lethal effect of certain xiphidiocercariae on various fishes." 32, Suppl. p. 16.
- †z. BROOKS, F. G., 1946.—"Two new species of dermatitis-producing schistosome cercariae of the Elvae group." 32, Suppl. p. 16.
- †ba. WOODHEAD, A. E., 1946.—"More observations on the life cycle of *Diocotophyma renale*." 32, Suppl. p. 16.
- †bb. FERGUSON, M. S., 1946.—"Schistosomiasis. (Motion picture)." 32, Suppl. p. 17.
- †bc. SWARTZWELDER, J. C., 1946.—"Echinococcus infection (hydatid disease) in Louisiana." 32, Suppl. p. 17.
- †bd. SCOTT, J. A., SISLEY, N. M. & STEMBRIDGE, V. A., 1946.—"The susceptibility of cotton rats and white rats to *Litomosoides carinii* in relation to the presence of previous infections." 32, Suppl. p. 17.
- †be. KRUG, E. S. & MAYHEW, R. L., 1946.—"A comparative study of ova of four species of bovine gastro-intestinal nematodes." 32, Suppl. pp. 17-18.
- †bf. MALDONADO, J. F. & ACOSTA-MATIENZO, J., 1946.—"The development of *Schistosoma mansoni* in its intermediate host, *Australorbis glabratus*." 32, Suppl. p. 18.
- †bg. TRAVIS, B. V., 1946.—"The relative efficiency of six species of mosquitoes as developmental hosts for *Dirofilaria immitis*." 32, Suppl. p. 18.
- †bh. WALTON, A. C., 1946.—"Parasites of the Brachycephalidae and of the Hylidae (Amphibia : Salientia : Procoela). I." 32, Suppl. p. 19.
- †bi. WALTON, A. C., 1946.—"Parasites of the Hylidae (Amphibia : Hylinae). II." 32, Suppl. p. 19.
- †bj. HERNÁNDEZ-MORALES, F., OLIVER-GONZÁLEZ, J. & PRATT, C. K., 1946.—"Follow-up examinations of patients infected with *Schistosoma mansoni* treated with pentavalent antimonials." 32, Suppl. pp. 19-20.
- †bk. CULBERTSON, J. T., ROSE, H. M. & OLIVER-GONZÁLEZ, J., 1946.—"Skin tests in human Schistosomiasis mansoni with antigen from *Planaria maculata*." 32, Suppl. p. 20.
- †bl. TSUCHIYA, H., 1946.—"Cerebral schistosomiasis and its parasitological consideration." 32, Suppl. p. 20.

† Abstract of a paper prepared for the 21st Annual Meeting of the American Society of Parasitologists, Boston, Massachusetts, December 26, 27, 28, 1946.

(213a) The risk of infection with *Schistosoma japonicum* when bathing near the mouths of infested freshwater streams has been found to be determined by the salt concentration. The critical salinity level is 1.75%. Cercariae are almost instantaneously killed by 3% to 4%. These data were used as the basis for certification of safety of estuarine waters at Leyte in the Philippines. R.T.E.

(213b) Rectal crypt aspiration is a more reliable and quicker method of diagnosing infection with *Schistosoma japonicum* than the routine of stool examination. R.T.L.

(213c) Experiments on the cercariae of *Schistosoma mansoni* prove that DDT as emulsion, oil film or in crystalline form is not a dependable cercaricide for emergency field use. Although severely affected and partially immobilized the cercariae are potentially dangerous. R.T.L.

(213d) None of 25 species of common Mollusca from eastern United States was found to be susceptible to experimental infection with miracidia of human schistosomes. Stunkard failed to confirm the work of Cram, Jones & Wright [see Helm. Abs., Vol. XIV, No. 53a] who reported that the life-cycle of *Schistosoma mansoni* was successfully completed in *Tropicorbis havanensis*. R.T.L.

(213e) The morphology of the adults and larval stages of *Plagitura salamandra* and *P. parva* from *Triturus viridescens* are described in detail. These studies support the specific identity of the two species. There are slight morphological differences in the larval forms and while the eggs of *P. salamandra* have to be ingested by *Pseudosuccinea columella*, those of *P. parva* must be ingested by *Helisoma anceps*. R.T.L.

(213f) From experimental infections of cotton rats (*Sigmodon hispidus texianus*) with *Litomosoides carinii* the conclusion is tentatively drawn that the male worms reach the length of 20 mm. and the females 80 mm. in 2½ months after infection. Microfilariae appear in the blood about the 50th day when the females have attained one-half of their full length. R.T.L.

(213g) Whereas *Hymenolepis diminuta* grows normally in male rats on a vitamin-deficient diet, in female rats they are stunted. The castration of males results in stunting in the growth of the worms even on a complete diet. Normal growth can be restored by the administration of testosterone by the mouth or subcutaneously. Growth is also inhibited in sexually immature males whether on complete or deficient diet but can be restored by testosterone. Progesterone can be substituted for testosterone. It is suggested that the pituitary gland might be involved in the normal growth of the worms. Pregnancy supplies the factor needed by the worms when the host is on a vitamin G-complex-deficient diet. R.T.L.

(213h) Careful experiments by Addis & Chandler have brought out some of the nutritional requirements of *Hymenolepis diminuta*. Lack of vitamin B₁ has no effect on their establishment or development but they need the fat-soluble vitamins A, D and E in order to establish themselves, though they can undertake normal growth without them. There is further some factor in brewers' yeast which is necessary for both establishment and growth. This factor has not yet been isolated. It is not one of the 8 already known factors of the vitamin G complex. It is apparently heat-stable. Liver extract contains a factor which reduces in part the stunting effect of a vitamin G-deficient diet. P.A.C.

(213i) Of 19,512 Navy and Marine patients examined for protozoal and helminth parasites between 1941 and 1945, 76.2% were negative. The percentages with helminths were: hookworm 2.8%, *Trichuris trichiura* 0.9%, *Strongyloides stercoralis* 0.2%, *Ascaris lumbricoides* 0.1%, *Hymenolepis nana*, *H. diminuta*, *Enterobius vermicularis* and *Taenia solium* less than 0.1%. R.T.L.

(213j) Further experiments show that the reduction of the natural resistance of mice to infection and reinfection with *Hymenolepis nana* var. *fraterna* caused by alcohol is indirect. It acts by interfering with normal food intake. R.T.L.

(213k) The reduction in natural resistance of mice to *Hymenolepis nana* var. *fraterna* by alcohol and by fasting is prevented by vitamin supplements. R.T.L.

(213l) A fair proportion of *Schistosoma japonicum* eggs in dogs' faeces survive over winter (40°F.) in stools which are free of blood and mucus. R.T.L.

(213m) Twenty-three cases of *Schistosoma japonicum* infection were diagnosed in civilian Filipinos in hospitals around Valencia. Nearly all the infections were probably acquired at Barrio Simaya and Sitio Inawaan, northeast of Valencia. Cases and infected snails (*Oncomelania quadrasi*) were found near the Barrio Calasig and other barrios, northeast of Lala, in the Province of Lanao. R.T.L.

(213n) In the island of Ponape the percentage of helminth infection determined among the natives was: *Wuchereria bancrofti* 14%, hookworm 76%, *Ascaris lumbricoides* 44%, *Trichuris trichiura* 94%, and *Strongyloides stercoralis* 2%, while at the Truk Atoll islands the percentages obtained were *Wuchereria bancrofti* 20.6%, hookworm 57.6%, *Ascaris lumbricoides* 50%, *Trichuris trichiura* 88.4%, *Strongyloides stercoralis* 11.5% and *Enterobius vermicularis* 3.8%. The clinical symptoms noted were hydrocoele, enlarged epitrochlear, femoral and inguinal glands and epididymis. One case of elephantiasis occurred at Ponape. R.T.L.

(213o) Three cases of *Loa loa* infection were treated with neostibosan intravenously twice daily for 2 weeks. In one of the cases the average of 447 microfilariae per cu.mm. had fallen to 141 per cu.mm., i.e. by 68%, 9 months later. The two other cases had calabar swellings which were greatly reduced in incidence and extent by the treatment. R.T.L.

(213p) In Michigan, *Moniezia expansa* is acquired by sheep in May or June and lost late in August or in September. No distinct symptoms are attributable to this infection and treatment does not seem justified. R.T.L.

(213q) [This paper appears *in extenso* in Proc. Soc. Exp. Biol., 1946, 63 (2), 360-361 (for abstract see below No. 234a).]

(213r) As the first larval sheath of *Bunostomum phlebotomum* is not shed, the third stage larva has two sheaths. Many of these larvae are found, in saline cultures, on the 7th day. Nine- to eleven-day-old cultures were proved to be infective. The eggs measure 79 to 117 μ by 47 to 70 μ . The first stage larvae, which develop in one to three days, range from 367.6 to 526.8 μ , averaging 460.2 μ by 18.8 μ . The second stage larvae recovered from one- to six-day-old cultures range from 397.3 to 564.7 μ and average 502.2 μ by 21.8 μ . The third stage larvae, 7 to 48 days old, range from 443 to 633 μ and average 528.3 μ by 21.4 μ . These second and third stages are not sharply differentiated. R.T.L.

(213s) Eggs of *Ostertagia ostertagi* appear in the faeces of calves 19 to 31 days after infection with third stage larvae. The larvae develop in the fundus glands of the abomasum. They return to the lumen during the third week but can be found in the tissues after several months. Small swellings and occasionally small haemorrhages are produced, but there is little injury. The nodules may slough off. R.T.L.

(213t) Ackert & Folse have shown experimentally that fowls carrying moderate infestations of *Ascaridia galli* are less resistant to infection with type A botulinus toxin than are chickens without ascarids. They showed symptoms of botulism earlier and more severely and there were heavier casualties in the parasitized group. P.A.C.

(213u) Skim milk in the diet seemed to exercise a measure of control over the degree of infestation of chickens with *Ascaridia galli*. Resistance to infestation was not complete but there were fewer worms in chickens given milk to drink instead of water. P.A.C.

(213v) Dougherty recognizes 6 families and 14 subfamilies in the suborder Strongylina. The Syngamidae are the most primitive forms. R.T.L.

(213w) Rabbits manifest a well defined rash with local inflammation at the site of penetration of the shaved abdomen by cercariae. R.T.L.

(213x) Eight out of 50 preparations proved lethal to molluscs in dilutions sufficiently low for use in emergency. Two were especially effective but none of the preparations are named. R.T.L.

(213y) Certain unidentified stylet cercariae in high concentration were found to be lethal to sunfish, perch and large mouth bass. R.T.L.

(213z) Two unnamed species of cercariae closely resembling *Cercaria* (*Trichobilharzia*) *ocellata* and occurring in *Limnaea stagnalis jugularis* and *Physella sayii* are capable of producing "swimmer's itch". R.T.L.

(213ba) A form which may prove to be the infective fourth stage larva of *Diocotophyme renale* has been found, but is not described in this author's abstract. R.T.L.

(213bb) An official U.S. War Department film on schistosomiasis has been produced by the author. R.T.L.

(213bc) Of the 15 cases of Echinococcus infection recorded in man in Louisiana, 10 were native-born in U.S.A. and of these 4 were Negroes. R.T.L.

(213bd) An infection with mature *Litosomoides carinii* in cotton rats does not inhibit the establishment of additional infection. R.T.L.

(213be) Size affords a means of differentiating the eggs of the 4 bursate nematodes of economic importance in Louisiana: *Cooperia* sp. 59 μ to 93 μ by 24 μ to 46 μ , *Haemonchus contortus* 58 μ to 102 μ by 37 μ to 59 μ , *Oesophagostomum radiatum* 73 μ to 120 μ by 38 μ to 70 μ , *Bunostomum phlebotomum* 79 μ to 117 μ by 47 μ to 70 μ . The shell of *B. phlebotomum* was relatively thick and rough compared with other species. *Cooperia* eggs were a more elongate oval. The eggs of *B. phlebotomum* were brownish in colour; those of the other species were practically colourless. R.T.L.

(213bf) The miracidium of *Schistosoma mansoni* penetrates the head-foot organ and the tentacles of *Australorbis glabratus*. The mother sporocyst is non-motile. The daughter sporocysts leave the mother cyst about the 18th day and migrate towards the digestive gland and ovotestis where they give rise to cercariae. R.T.L.

(213bg) At Guam the relative percentages of the mosquitoes [experimentally ?] infected with infective stages of *Dirofilaria immitis* were: *Culex jepsoni* 68%, *C. annulirostris* 57%, *C. quinquefasciatus* 27%, *Aedes aegypti* 23%, *A. pandani* 2% and *A. guamensis* 15%. R.T.L.

(213bj) The faeces of 12 patients treated with stibamine were negative for ova of *Schistosoma mansoni* one month after treatment and have continued so for 12 months. R.T.L.

(213bk) It has been found that an antigen similar to one of those in the schistosomes of man occurs in relatively small amount in *Planaria maculata*. R.T.L.

(213bl) Cerebral granulomata removed from a veteran of the Philippine campaign contained eggs of *Schistosoma japonicum* surrounded by pseudotubercle formations. Eggs were also present in the faeces. R.T.L.

214—Journal of the Royal Army Medical Corps.

a. CAWSTON, F. G., 1946.—"Mechanical safeguard against Bilharzia. Destroying the parasites." 87 (4), 177-179.

(214a) As there is a proposal to spend £50,000 on a 5-year campaign against bilharziasis in Southern Rhodesia, Cawston draws attention to the value of mechanical methods of destroying the cercariae and illustrates 2 alternative schemes designed for this purpose. R.T.L.

215—Journal of the Royal Egyptian Medical Association.

- a. KHALIL, M. & HILMY, I. S., 1946.—“The palm-leave as a snail trap; a preliminary report.” 29 (1/2), 1-6.
- b. HALAWANI, A., NOR-EL-DIN, G., SHAKER, M. & ABDEL-KHALEK, F., 1946.—“On the value of the colloidal gold reaction and cephalin cholesterol flocculation test in the study of liver damage in cases of schistosomiasis.” 29 (1/2), 7-12.
- c. HALAWANI, A. & EL-KORDY, M. I., 1946.—“Study into the effect of penicillin on tropical diseases.” 29 (1/2), 20-31.
- d. ABDALLAH, A., 1946.—“Bacteriological flora in urinary schistosomiasis. A report on 150 cases.” 29 (1/2), 33-37.
- e. BAZ, I. I., 1946.—“A fish trematode of the genus *Hamacreadium* Linton, 1910 (F. Allocreadiidae).” 29 (1/2), 55-61.
- f. LATIF, N. & EL-KORDY, M. I., 1946.—“On the vitamin content of hydatid fluid.” 29 (1/2), 71-75.
- g. HALAWANI, A. & NOR-EL-DIN, G., 1946.—“Encephalopathy following treatment of schistosomiasis with tartar emetic.” 29 (1/2), 76-79.
- h. HALAWANI, A. & ABDALLAH, A., 1946.—“Intensive treatment of schistosomiasis with repodral. A preliminary report on fifteen cases.” 29 (3/4), 101-121.
- i. HAMMOUDA, M., 1946.—“Intensive treatment of bilharzia with repodral and the care of the heart.” 29 (3/4), 122-127.
- j. NAGATY, H. F., 1946.—“Is measles beef cured as ‘basterma’ fit for human consumption?” 29 (3/4), 128-131.
- k. NOUR EL-DIN, G. E.-D., 1946.—“Recent advances in chemotherapy of tropical diseases. A review of the recent literature.” 29 (5/6), 153-172.
- l. HALAWANI, A., 1946.—“The effect of gammexane on the snails *Planorbis* and *Bulinus*, the intermediate hosts of schistosomiasis in Egypt.” 29 (7/8), 197-206.
- m. EL-AYADI, M. S., 1946.—“On the distribution of antimony in the body organs during the various phases of intensive treatment of bilharzia with repodral.” 29 (7/8), 227-237.
- n. HALAWANI, A. & HAFIZ, A., 1946.—“Treatment of urinary Schistosomiasis haematobium with a modified form of intensive treatment using repodral (fouadin) solutions prepared locally from the powder.” 29 (7/8), 238-242.
- o. HALAWANI, A., ABDALLAH, A. & HAFIZ, A., 1946.—“Treatment of endemic cirrhosis of the liver with a diet rich in protein; and choline monohydrogen citrate. (Report on six cases).” 29 (7/8), 253-264.
- p. EL-KORDY, M. I., 1946.—“On the incidence of hydatid disease in domestic animals in Egypt.” 29 (7/8), 265-279.
- q. BAZ, I. I., 1946.—“Distribution of filariasis in Egypt.” 29 (7/8), 280-287.

(215a) A method is described of employing branches of the palm-tree as traps for snails. Traps of equal size are submerged in the water for the same duration of time. The number of snails attached to each trap on withdrawal is a sensitive guide to the presence or absence of Bilharzia carriers in the water; it is also the most practical way of judging the progress of snail control measures. J.J.C.B.

(215b) Cephalin cholesterol flocculation and colloidal gold tests were done with sera obtained from 135 and 87 cases respectively, for the purpose of assessing the value of these tests in the detection of liver damage caused by bilharzial infection and by antimony treatment. The cephalin flocculation test was found to be more sensitive than the colloidal gold test. Both tests are useful in detecting liver damage in cirrhosis and jaundice and in differentiating between the infective and obstructive types of the liver condition. J.J.C.B.

(215c) No curative effect was observed after 3 cases of Schistosomiasis haematobia and 2 of filariasis due to *Wuchereria bancrofti* had been treated with penicillin, each patient having received approximately one million units. J.J.C.B.

(215e) Baz describes a new species of *Hamacreadium* from the gut of the Mediterranean fish *Pagrus vulgaris*, and names it *H. morgani* n.sp. after the local name “morgan” of the host. The new species is differentiated from previously recorded species by means of a table of morphological features. The specific diagnosis includes the following: length 5.7 to 7.3 mm.; breadth 1.76 to 2 mm.; oral sucker 0.32 to 0.42 by 0.47 to 0.52 mm.; ventral sucker 0.63 to 0.77 by 0.73 to 0.85 mm.; pharynx short and globular, 0.23 to 0.35 mm.; testes oblique; ovary lobed, to the right and in front of the testes; genital pore to the left side of mid-ventral line; eggs 0.071 to 0.089 mm. by 0.035 to 0.051 mm., shell thickened at abopercular end. J.J.C.B.

(215g) A case history is recorded which suggests that antimony, which was given as treatment for schistosomiasis, may have produced an encephalopathy condition similar to that following arsenic administration, but the possibility of a latent virus remains for investigation.

R.T.L.

(215h) Fifteen cases of schistosomiasis were treated with repodral (sodium antimony-3-biscatechol disulphonate = Fouadin), giving 0.5 c.c. for each kg. of body weight for the whole course which extended over two days and consisted of 3 injections at 3-hourly intervals each day. Eleven of the 15 cases were cured; the remaining 4 cases improved but continued to pass living eggs. Toxic symptoms were not severe and there appeared to be no deleterious effect on the liver and kidneys.

J.J.C.B.

(215i) A preliminary investigation with the intensive treatment of schistosomiasis with repodral [see previous abstract], in conjunction with certain precautions with regard to the care of the heart, gave results which encourage its application in the treatment of schoolchildren.

J.J.C.B.

(215j) "Basterma" is beef cured in a special way, described in this paper, and eaten raw as a sandwich or cooked as a meat dish in Egypt, Turkey and other countries of the Middle East. In a sample of measles beef which was converted into Basterma the cysticerci showed, microscopically, signs of disintegration. A volunteer who consumed a portion containing many cysticerci did not become infected.

R.T.L.

(215l) Laboratory and field experiments with Gammexane in powder form showed that this agent is destructive to snails (*Bulinus* and *Planorbis*) in a dilution of approximately 5 to 6 parts per million after 24 hours.

J.J.C.B.

(215m) Using dogs in the intensive treatment with repodral, the author investigated various aspects of the distribution of antimony in the body organs after the treatment. Twenty-four hours after the last injection practically every organ had taken up an appreciable amount of the injected antimony, but the liver had about 15 times the average content of the other organs. The blood contained the smallest amount. Another experiment showed that the liver retains the antimony longer than any of the other organs, probably for more than one week. In rats antimony reached its highest concentration in the liver at the end of the second hour. The average figure of the antimony level in the livers of rats was about 77 mg. per cent. Liver, spleen, kidney and blood attained the highest concentration of antimony at 11 a.m. on the second day of treatment, which was the most likely time for toxicity symptoms to appear.

J.J.C.B.

(215n) A method is described for the preparation of repodral solution immediately before use. This consists of dissolving 6.5 gm. of the powder in 100 c.c. of water, filtering, and sterilizing by boiling for 15 minutes. The solution should be used on the same day. Intensive treatment of 103 patients with this preparation resulted in apparent cures in approximately 84.5%.

J.J.C.B.

(215o) There was apparent improvement in cases of bilharzial cirrhosis of the liver complicated by ascites after treatment with a diet rich in proteins, and the administration of 5.7 gm. choline citrate daily. Diuretics and paracentesis were also employed.

R.T.L.

(215p) A survey of the incidence of hydatid disease in camels, buffaloes, cattle and sheep slaughtered in the Cairo abattoir revealed the highest rate of infection in camels (31%) and the lowest in sheep (1.5%). Buffaloes (16%) and cattle (10%) show a moderate infection rate. The highest percentage of fertile cysts was found in camels (68.42%) and in sheep (63.64%). Multieocular and multicystic cysts occurred but were rare. Various organs were infected but cysts were most commonly found in the liver and lungs where their occurrence varied in different kinds of hosts. Thus in camels the lungs were more frequently infected than the liver, while the reverse held in the case of buffaloes, cattle and sheep. From the results of

precipitin and complement-fixation tests for the diagnosis of hydatid in camels it is concluded that these tests cannot be relied upon when applied to domestic animals. J.J.C.B.

(215q) *Culex pipiens*, the normal vector of *Wuchereria bancrofti* in Egypt, is widely distributed all over the country but the infection exists in certain limited areas while other parts of the country are completely free. The distribution of the disease appears to be closely connected with the water supply. For example, in the town of Rashid the incidence of filariasis is high in quarters having numerous wells and low where the wells are few. The disease in Rashid is disappearing gradually since the introduction of a common water supply and the abolition of water reservoirs and wells. In Damietta and Khafra El Ghataty filarial incidence has decreased subsequently to the introduction of perennial or piped water supplies and the abolition of old reservoirs and wells. J.J.C.B.

216—Journal of the South African Veterinary Medical Association.

a. CANHAM, A. S., 1946.—“Cysticercosis in calves in Natal.” 17 (3), 169–171.

(216a) A number of calves under 6 weeks old, two 3 weeks old and one 10 days old were recently observed with cysticercosis bovis at the abattoir, Pietermaritzburg, Natal. R.T.L.

217—Journal of Tropical Medicine and Hygiene.

a. WATSON, J. M., 1946.—“The differential diagnosis of hookworm, *Strongyloides* and *Trichostrongylus*. With special reference to mixed infestations.” 49 (5), 94–98.

(217a) Watson deals with the microscopical differentiation of the eggs and larvae of hookworm, *Strongyloides* and *Trichostrongylus* in human infections. He quotes the literature to show that *Trichostrongylus* infections are commoner in man than is generally recognized. The eggs in an undetermined species of this genus, seen by the author in human faeces, measured 71μ to 105μ by 38μ to 50μ . Diagnosis cannot be based on size alone but its bird's-egg-like shape and greenish tinge are sufficiently distinctive. The first stage larva has a dorsal bend at the level of the anus and a minute knob at the end of the attenuate post-anal region. Some human infections diagnosed only on the presence of eggs in the faeces may have been cases of pseudo-parasitism. R.T.L.

218—Mededeelingen van het Instituut voor Rationeele Suikerproductie. Bergen-op-Zoom.

a. HELLINGA, J. J. A., 1946.—“De vermeerdering van bietenaaltjes door de teelt van kruisbloemige gewassen.” (1945), 15 (3), 69–85.

b. HELLINGA, J. J. A., 1946.—“Veldjesproef op aaltjesziekten grond in den proeftuin (1940–1942).” (1945), 15 (3), 86–95.

c. HELLINGA, J. J. A., 1946.—“Proeven ter bestrijding van bietenaaltjes in 1942 (in bakken).” (1945), 15 (3), 96–99.

d. HELLINGA, J. J. A., 1946.—“Proeven ter bestrijding van bietenaaltjes in 1943 (in bakken).” (1945), 15 (3), 100–102.

(218a) Hellinga made extensive and intensive field observations during 1942 and 1943, and found that the sugar-beet eelworm (*Heterodera schachtii* Schmidt) attacks agricultural cruciferous crops in large numbers. It multiplies particularly on winter crops such as rape-seed, on which both autumn and spring generations may develop. The increase in rape cultivation is thus a real danger to sugar-beet crops which, on beet-sick land, can only be successful in wide crop rotations. These facts must be taken into consideration in planning crop rotations. M.T.F.

(218b) Hellinga studied, during 3 seasons, the influence of cropping on 15 field plots infected with the sugar-beet eelworm. There were 5 series of 3 plots, each 11 by 2 metres. Series 1 had summer rape as a trap-crop sown 4 times, winter carrots and sugar-beet in the 3 successive years; series 2 had flax, onions and sugar-beet; series 3 had lucerne, flax and sugar-beet; series 4 had yellow mustard, brown beans and sugar-beet; series 5 had potatoes, broad

beans and sugar-beet. Soil samples were taken each year for the estimation of eelworm content, and in the third year, when all the plots grew sugar-beet, the crops were weighed and the sugar content estimated. Although all plots started with approximately similar degrees of infestation, the final eelworm content of the soil in series 1 and 5 was lower than in the other 3, and in series 1 the sugar-beet crop was better than in any other series, as measured by weight of foliage, roots and sugar content. The author concludes that yields depend to a great extent on factors outside the actual eelworm content of the soil. In all the series, the eelworm content increased very markedly after the beet crop.

M.T.F.

(218c) Hellinga treated 3 duplicate pairs of boxes of eelworm (*Heterodera schachtii*)-infested soil with Aretan (a mercury compound), rape-seed root excretion (both of which stimulate larvae to hatch from the cysts) and Cystogon (used to combat root-knot eelworm in glasshouses). The boxes were one metre square and 0.6 metres deep and were treated respectively with 5 litres of 0.02% Aretan, 5 litres of water from about 35 gm. of germinating rape-seed, and 20 gm. of Cystogon mixed with sand and raked into the surface of the soil: 2 control boxes were watered with 5 litres of tap water. Samples of soil were taken from all boxes before treatment and about 7 weeks later; 2 months after treatment sugar-beet was sown and the roots dug and carefully examined for cysts after 2 months' growth. The roots were poorly developed in all cases and no conclusive results were obtained from counts of cysts on them. From estimations of the eelworm content of the soil it is concluded that some reduction of the cyst content followed application of Aretan and rape-seed root excretion.

M.T.F.

(218d) To 3 pairs of boxes of soil infested with the sugar-beet eelworm (*Heterodera schachtii*) Hellinga added 100 gm. and 25 gm. of calcium nitrate and 100 gm. of Cystogon W6127D per square metre respectively. At the same time 2 untreated boxes of the same soil were set up as controls. A month later sugar-beet was sown in all boxes, allowed to grow for 7 weeks and then the plants were dug up and the roots carefully washed: the tops and roots were weighed and the female nematodes on the roots counted. Samples of the soil were taken at the beginning and end of the test. No significant differences were detected between the eelworm content of the soil in the different boxes before or after treatment. The females counted on the roots averaged 5.2 per plant from the soil treated with Cystogon, 10.1 on the control plants and 11 to 12 on the plants from the calcium nitrate treated soils. A greater weight of root and leaf was produced by the plants in the latter soils than by the controls, while the plants in the Cystogon-treated soil were slightly heavier than the controls. The author concludes that Cystogon checks, but does not prevent, the development of the sugar-beet eelworm while calcium nitrate owes its effects chiefly to the fertilizing action of the nitrogen.

M.T.F.

219—Medical Journal of Australia.

- a. SHAW, H. M., 1946.—“A case of hydatid disease of the thyroid gland.” 33rd Year, 2 (12), 413-414.

220—Medical Parasitology and Parasitic Diseases.

- a. SERGIEV, P. G., 1946.—[The results of 25 years' work of the Institute for Malaria, Medical Parasitology and Helminthology of the Academy of Medical Sciences of the USSR.] 15 (1), 3-18; (2), 3-20. [In Russian.]
- b. KAMALOV, N. G., GORDADZE, G. N., TSUTSUNAVA, T. N., KHIZANISHVILI, A. O., KAMALOVA, A. G. & BUGIANISHVILI, S. M., 1946.—[Sanitary measures in a focus of ankylostomiasis.] 15 (1), 55-65. [In Russian.]
- c. KORYAZHNOV, V. P., 1946.—[Concerning the possibility of transmission of trichinellosis by milk.] 15 (1), 65-66. [In Russian.]
- d. ZERCHANINOV, L. K. & BULICHEVA, N. A., 1946.—[Helminthic fauna of the workers of coal mines.] 15 (1), 66-67. [In Russian.]
- e. ZAKHAROV, V. I., 1946.—[Diagnostical value of Casoni's reaction.] 15 (1), 68-69. [In Russian.]
- f. KAMALOV, N. G., 1946.—[On contamination of humans by Ancylostomidae through grass.] 15 (3), 68-72. [In Russian.]

- g. KEVORKOVA, V. I., 1946.—[On the method of diagnosis of enterobiosis.] 15 (3), 73. [In Russian.]
 h. MOSHKOVSKI, S. D., 1946.—[Functional parasitology. (Part I.)] 15 (4), 26–36. [In Russian.]
 i. RUKHLYADEV, D. P., 1946.—[On the helminth fauna of the human population of the Taimir Peninsula.] 15 (4), 100–102. [In Russian.]

(220a) A resumé is given of the more important achievements and activities of Russian helminthologists during the Institute's 25 years of existence. [All the works mentioned have been abstracted in Helm. Abs.]. C.R.

(220b) The authors examined 771 inhabitants in a Georgian village of whom 97·3% were infested as follows: 64·9%—hookworms; 82·8%—*Ascaris lumbricoides*; 89·5%—*Trichuris trichiura*; 1%—*Hymenolepis nana*; 0·4%—*Taeniidae* sp.; and 1%—*Trichostrongylidae* sp. In the hookworm infestation the egg counts, done by the Stoll method, varied from 1 to 2,000 eggs per gm., the mean being 548 e.p.g. The main cause of such high infestation was the complete lack of sanitary arrangements; the soil was therefore contaminated and poultry and other domestic animals were instrumental in disseminating the eggs of the helminths. In addition the faeces were used for soil fertilization. Climatic conditions in Georgia are very favourable for the development of hookworm larvae. By the introduction of a special type of hygienic latrine and the prompt treatment of all infested persons with carbon tetrachloride, a reduction in infestation to 6·5% with a mean of 62 e.p.g. of faeces was effected in the course of 4 years. C.R.

(220c) According to the author, milk is of no practical importance in the transmission of trichinellosis in pigs. Piglets can safely take milk from mothers infested with *Trichinella spiralis*. It was also ascertained that there is no intrauterine infestation. C.R.

(220d) Of 313 coal miners examined in 1940 to 1941, both by faecal smears and by Fülleborn's method, 35·6% were infested with helminths, viz., *Trichuris trichiura* 2·4%, *Ascaris lumbricoides* 5·6%, *Enterobius vermicularis* 14·7%, *Taeniidae* sp. 10·8%, *Hymenolepis nana* 1·8%, and *Diphyllobothrium latum* 1·8%. C.R.

(220e) In 21 authentic cases of *Echinococcus* in human beings, the Casoni reaction was only positive in 16 cases (76·2%). In 49 patients suffering from other ailments, the test was positive in 11 cases (22·4%). C.R.

(220f) In Georgia, ground covered with grass is more favourable for the development and prolonged existence of infective larvae of hookworm than a grass-free area, as the rays of the sun tend to destroy the larvae. With favourable temperatures and humidity the larvae migrate vertically up the blades as far as 22 cm. Kamalov found both under field and laboratory conditions that the larvae only migrate in the infective stage and this migration takes place only when the grass is covered with a film of water. Basing his opinions on experiments with hamsters, the author does not consider that the use of shoes and stockings affords man any protection against contact with infective larvae. C.R.

(220g) For the diagnosis of *Enterobius vermicularis* infection, Kevorkova uses a cotton wool tampon in place of an anal swab. The tampon is soaked with water and enclosed in a tube. The patient is instructed to squeeze out the cotton wool and then wipe the perineum before rising in the morning. Afterwards the tampon is replaced in the tube for delivery to the laboratory. The efficacy of her method is the same as that produced by the anal swab but it proved particularly useful for older children and adults who might object to the use of the anal swab. This method also revealed eggs of *Ascaris lumbricoides*, *Trichuris trichiura*, *Hymenolepis nana* and of *Taeniidae*. C.R.

(220i) The author reports the occurrence of *Ancylostomatidae* sp., *Enterobius vermicularis*, *Ascaris lumbricoides*, *Hymenolepis nana*, *Taeniidae* sp., and *Diphyllobothrium latum* in the inhabitants of Taimir Peninsula. Among 47 fish belonging to different species, plerocercoids of *D. latum* were found only in *Lota lota* and *Salmo* sp. C.R.

221—Medicina Colonial. Madrid.

*a. MATEO TINAO, M., 1946.—“Quimioterapia antihelmíntica.” 7 (1), 3–27.

*b. GONZALEZ CASTRO, J., 1946.—“Filaridos humanos y sus filariosis.” 7 (1), 28–56.

222—Nature. London.

a. ABBOTT, J. D., RODEN, A. T. & YOELI, M., 1946.—“Anopheline mosquitoes as natural vectors of equine dermal filariasis.” [Correspondence.] 158 (4025), 913.

(222a) Examination of the exudate of skin lesions in mules in eastern Macedonia showed large numbers of microfilariae ranging from 150 μ to 170 μ in length. In the course of dissection of 456 mosquitoes for malaria parasites, developmental forms of filarial worms were observed in 14 *Anopheles sacharovi* (var. *clutus*) and once in *A. maculipennis* (var. *typicus*). As there was no clinical evidence of filariasis in the local inhabitants it is inferred that these anophelines were naturally infected from the mules.

R.T.L.

223—Natuurwetenschappelijk Tijdschrift voor Nederlandsch Indië.

a. LIE KIAN JOE, 1946.—“Trichostrongylus infections in man and domestic animals in Java.” 102 (3), 41–42.

(223a) Lie Kian Joe summarizes a thesis (unpublished?) “Trichostrongylus infecties bij den mensch en de huisdieren op Java” submitted to the College of Medicine, Batavia in 1941. In Java *Trichostrongylus colubriformis* was found to be present in 41% of the Malay and 19% of the Chinese autopsies. *T. axei* occurred in 9% of the Malay and none of the Chinese autopsies. The highest number of worms found was *T. colubriformis* 73 and *T. axei* 8. In Java, *T. colubriformis* is present in goats and sheep in large numbers and is less common in monkeys and rabbits, while *T. axei* is very common in goats, sheep and cattle. Volunteers were infected by the mouth with *T. colubriformis* from goats and sheep; skin infections were unsuccessful. Negative results followed attempts to infect them with *T. axei*.

R.T.L.

224—New England Journal of Medicine.

a. MASON, P. K., DANIELS, W. B., PADDOCK, F. K. & GORDON, H. H., 1946.—“Schistosomiasis japonica. Diagnosis and treatment in American soldiers.” 235 (6), 179–182.

(224a) An account is given of the diagnosis and treatment of 481 cases of Schistosomiasis japonica acquired on Leyte. Tartar emetic proved a more effective treatment than Fouadin. Repeated stool examination of persons exposed to risk is advocated.

R.T.L.

225—New Orleans Medical and Surgical Journal.

a. DOMBROWSKY, E. F., 1946.—“Schistosomiasis (Manson's). Presentation of twenty-five cases.” 98 (8), 362–365.

(225a) The history of 25 cases of Schistosomiasis mansoni shows that none originated in the Canal Zone and that the majority came from Puerto Rico. A precipitin test was positive in one of the two patients examined. Oral administration of emetine hydrochloride, which was given to one patient only, was ineffective. The other cases were treated with tartar emetic and with Fouadin, but no conclusions were drawn as to their comparative efficacy.

R.T.L.

226—New Zealand Journal of Agriculture.

a. BRASH, A. G., 1946.—“Gid—a comparatively rare parasitic disease of sheep.” 73 (5), 397.

(226a) Gid in sheep, due to *Coenurus cerebralis*, has not been noted from the North Island, New Zealand while from the South Island it has been reported only on 6 occasions from parts of Canterbury. A photograph shows a large cyst in the brain of a calf.

R.T.L.

227—Nordisk Medicin.

- a. ESPERSEN, T., 1946.—“Om tilsigtet og uønsket Virkning ved 191 Baendelormekure med Extractum filicis i Doser paa indtil 15 gram.” 31 (39), 2191-2195. [English summary p. 2195.]

(227a) Extractum filicis was administered to 191 cases of tapeworm in the medical departments of the Royal Frederik Hospital and the Rigshospital, Copenhagen, between 1892 and 1944: 179 of the cases harboured *Taenia saginata*, three had *T. solium*, and nine had *Diphyllobothrium latum*. The toxic phenomena, which are reviewed, showed no definite relation to the dosage. The dosage was lowered in 1933 from 15 gm. to 10 gm. The scolex was evacuated after the first treatment in 72% of the cases. In children the cure was independent of the amount of the dose, but it was found advisable not to exceed $\frac{2}{3}$ gm. per year of age if untoward symptoms were to be avoided. R.T.L.

228—North Queensland Naturalist.

- a. FLECKER, P. O., 1946.—“Some Queensland bowel parasites.” 14 (81), 12-14.

229—Papers and Proceedings of the Royal Society of Tasmania.

- a. CROWCROFT, P. W., 1946.—“A description of *Sterrhurus macrorchis* n.sp., with notes on the taxonomy of the genus *Sterrhurus* Looss (Trematoda—Hemiuridae).” (For the year 1945), pp. 39-47.

(229a) Associated with *Parahemiurus australis*, a number of *Sterrhurus macrorchis* n.sp. were collected from *Physiculus barbartus*, the common Rock cod of Tasmanian waters. Crowcroft proposes to separate the genus *Sterrhurus* from *Lecithochirium* on the basis of a fundamental difference in the structure of the terminal genital ducts. R.T.L.

230—Parasitica. Gembloux, Belgium.

- a. WAUTIE, A., 1946.—“Prophylaxie et traitement des principales parasitoses gastro-intestinales du cheval.” 2 (2), 44-67.

(230a) Wautié records his experiences in the examination of the faeces of 229 horses for evidence of helminth infections. Whereas sick animals are usually treated, those slightly infected are agents in the spread of helminths. He has adopted a mixture containing CCl_4 , CS_2 and istizin [dioxyanthraquinone] as a polyvermifuge. Phenothiazine in doses of 50 gm. gave an efficacy of 88% against strongyles and practically none against ascarids. Insurance societies and their members should support campaigns for the treatment of carriers. R.T.L.

231—Presse Médicale.

- a. DESCHIENS, R., 1946.—“L'action anthelminthique de la phénothiazine (thiodiphénylamine) et de ses dérivés.” 54 (4), 53-54.
b. ROUQUÈS, L., 1946.—“Le traitement de l'oxyurose.” 54 (4), 67.

(231a) Deschiens, after reviewing the published work of other clinicians, concludes that phenothiazine can be used in the treatment of enterobiasis in normal adults with advantage when given in one or two treatments of 3 to 5 days in succession with a 3-week interval, but not for patients with anaemia, hepatitis or nephritis, or children up to 12 years old. R.T.L.

(231b) Rouquès summarizes the views of C. Garin on the treatment of enterobiasis [see J. Méd. Lyon, 1945, Vol. 26, pp. 509-510]. The need to treat simultaneously all infected members of the family is stressed. Thymol is the anthelmintic of choice while tetrachlorethylene is not available. Gentian violet and malachite green alone are ineffective. All require to be supplemented by hypertonic enemata and the external use of calomel ointment over a considerable period. R.T.L.

232—Proceedings of the American Society for Horticultural Science.

- a. McFARLANE, J. S., HARTZLER, E. & FRAZIER, W. A., 1946.—“Breeding tomatoes for nematode resistance and for high vitamin C content in Hawaii.” 47, 262-270.

(232a) As compared with *Lycopersicon esculentum*, the wild tomato (*L. peruvianum*) has a high vitamin C content and high, though variable, resistance to *Heterodera marioni*. The authors raised 5 interspecific hybrids between varieties of *L. esculentum* crossed with *L. peruvianum* by means of an embryo culture technique. The seedlings were tested in seed-beds artificially inoculated with *H. marioni*. Three proved highly resistant and two moderately so. Only one plant set fruit: the set was light and sporadic but this plant was very vigorous and was field-resistant to spotted wilt, grey leaf spot and green potato aphid (*Macrosiphum solanifolii*) though susceptible to early blight and bacterial wilt. Other hybrids tested for root-knot resistance (progeny of a cross between the variety "Michigan State Forcing" and *L. peruvianum*) were galled in the seedling stage but grew well in the field and developed a secondary root system reasonably free from galls. This degree of resistance is not considered satisfactory. The data suggest that resistance to nematodes is dominant to susceptibility and show that *L. peruvianum* is heterozygous for nematode resistance and vitamin C content.

M.T.F.

233—Proceedings of the Rhodesia Scientific Association.

a. ALVES, W., 1946.—"Recent advances in the study of bilharziasis." 41, 22-27.

(233a) Although malachite is effective against molluscs and is relatively cheap, easily obtainable in Southern Rhodesia and non-poisonous to fish, its bulk is a serious disadvantage. A new antigen has been produced by Blackie & Alves for skin testing for Bilharzia infection. It is an extract of free Bilharzia cercariae, dried, extracted with normal saline containing 1% phenol. Although 30% of the positive reactors were not passing eggs, 100% of those passing eggs gave a positive skin reaction. A Southern Rhodesia doctor has succeeded in shortening the Alves method of treatment with tartar emetic by giving 5 injections in 24 hours instead of 6 in 30 hours. Whereas in the summer months the Bilharzia cercariae die within 48 to 50 hours, during the winter they survive 144 hours.

R.T.L.

234—Proceedings of the Society for Experimental Biology and Medicine.

a. MAYHEW, R. L., 1946.—"Infection experiments with the hookworm (*Bunostomum phlebotomum*) in calves." 63 (2), 360-361.

(234a) Heavy infections with *Bunostomum phlebotomum* have been produced experimentally in calves both by the mouth and through the skin. The prepatent period ranged from 57 to 79 days.

R.T.L.

235—Public Health Reports. Washington.

a. JONES, M. F. & BRADY, F. J., 1946.—"The removal of the cercariae of *Schistosoma mansoni* from water by filtration through diatomaceous silica in a small model filter." 61 (43), 1538-1543.

(235a) In experimental filters made with diatomaceous silica the pores between the particles are small and, owing to their irregular shape, the particles compress into a tight mass, whereas with sand the pores between the grains are relatively large and enable cercariae to pass through the mass. Data of experiments made with a small model filter show that a high degree of contamination of the effluent occurs in the precoating process and that, with the model used, an interval as long as 12 minutes, dependent on a number of factors, had to elapse after the effluent became visibly clear to safeguard against cercarial contamination.

R.T.L.

236—[Publicaciones.] Instituto de Sanidad Vegetal, Ministerio de Agricultura, Buenos Aires.

a. LÓPEZ CRISTÓBAL, U., 1946.—"La anguilulosis de la alfalfa en la República Argentina." Serie A, Año II, No. 20, 36 pp.

(236a) López-Cristóbal illustrates, by means of a map, the widespread incidence of stem disease of alfalfa caused by *Anguillulina dipsaci* in Argentina. The biological race of the parasite involved can apparently attack both alfalfa and oats. A description is given of disease symptoms set up in these two hosts. Evidence is presented showing that dispersal of the parasite

takes place in bundles of alfalfa hay and by means of infested fragments of stem etc. among alfalfa seeds. Control measures suggested include the warm water treatment of seed (10 minutes at 55 C.), the burning off, by means of a flame gun, of diseased patches in new plantings and the wider use of proved resistant strains of alfalfa. T.G.

237—Publicações Médicas. São Paulo.

- a. BARROS, J. DE R., 1946.—“Determinações nervosas da parasitose sanguínea de Manson e Pirajá da Silva. Forma epiléptica.” 17 (7), 43, 45-48.
- b. BACELAR DA SILVA, P., 1946.—“Estrongiloidíase. Sintomatologia e tratamento.” 17 (7), 49, 51-52.

(237b) *Strongyloides stercoralis* was detected in about 30% of 2,000 duodenal intubations for gastric and duodenal ulcerations in the State of Rio. R.T.L.

238—Puerto Rico Journal of Public Health and Tropical Medicine.

- a. HERNÁNDEZ MORALES, F., SUÁREZ, R. M., PRATT, C. K. & OLIVER GONZÁLEZ, J., 1946.—“Treatment of Schistosomiasis mansoni with antimony lithium thiomalate (anthiomaline).” 21 (4), 336-343. [Also in Spanish pp. 344-349.]
- b. TUCKER, H. A., 1946.—“Intestinal cestode infections in natives of Panama.” 21 (4), 364-365. [Also in Spanish pp. 366-368.]
- c. PETERSON, J., ARBONA, G. & ACOSTA, J., 1946.—“Hookworm infestation in a small town of Puerto Rico.” 22 (1), 48-57. [Also in Spanish pp. 58-65.]
- d. BERCOVITZ, Z. T. & SHWACHMAN, H., 1946.—“Filarial survey among young Puerto Ricans.” 22 (1), 66-81. [Also in Spanish pp. 82-94.]
- e. HERNÁNDEZ MORALES, F. & OLIVER GONZÁLEZ, J., 1946.—“Filariasis in Puerto Rico. A note on family incidence.” 22 (1), 95-96. [Also in Spanish pp. 97-98.]
- f. HERNÁNDEZ MORALES, F. & GONZÁLEZ BARRIENTOS, G., 1946.—“The incidence of filariasis at the Insular Penitentiary for Men.” 22 (1), 99-101. [Also in Spanish pp. 102-105.]

(238a) Antimony lithium thiomalate (anthiomaline) exerts a markedly parasitotropic action against *Schistosoma mansoni*. The optimum dose is 3 c.c. every other day. A progressive eosinophilia was observed during treatment and twice reached 53%. Owing to toxic effects in 4 out of 33 patients the treatment had to be discontinued. R.T.L.

(238b) In clinical records of 558,556 patients in the Gorgas Hospital, Ancon, Canal Zone, Panama between May 1904 and November 1944, 126 cases of cestode infection were noted, viz., *Taenia saginata* 99, *T. solium* 8, *Hymenolepis nana* 16 and *Diphyllobothrium latum* in one instance. Only 15 of the 126 cases were unquestionably autochthonous. R.T.L.

(238c) A total of 1,722 persons in the town of Trujillo Alto were examined for hookworm infestation and 60.7% were found to be infested. The average hookworm burden was estimated to be about 290 worms in those infested and of these the egg-counts indicated hookworm disease in 39.8%. A significant difference was noted between infection rates in urban dwellers (30.4%) and rural dwellers (60.7%), and also between the ages at which the rate began to rise in the 2 categories, the increase being much earlier in the rural area than in the urban area. In the urban area the rise in infection rate showed earlier in males (10 to 14 years' age group) than in females (15 to 24 years' age group) while in the rural area this difference was not well defined. Correlation was demonstrated between infection rate and the presence or absence of sanitary privies in the sanitated and unsanitated areas. J.J.C.B.

(238d) A total of 16,439 young Puerto Ricans, aged 18 to 38 years, were examined for microfilariae in circulating blood taken at night. 3.42% were positive for *Mf. bancrofti* which was the only species found. Microfilarial counts in a group of 97 positives varied from one to 396 per 20 cu.mm. of blood. The percentage of positive cases was recorded for the different age groups in 8,029 persons. There was a decline from 5.03% in the 18 to 20 years' age group to 0.92% in the 36 to 38 years' age group. The geographical distribution and percentage of Puerto Ricans harbouring microfilariae is given for 76 localities in Puerto Rico and in the island of Vieques [Bieque]. This is illustrated by a map in the case of Puerto Rico. J.J.C.B.

(238e) Hernández Morales & Oliver González carried out a survey to determine the incidence of microfilariae in the peripheral blood of the relatives of patients affected with recurrent attacks of lymphangitis of the lower extremities. A total of 58 families was examined comprising 196 individuals, of which 58 were patients attending the University Hospital. Eight patients (13.8%) were found to be positive while 6 (4.3%) of the relatives were positive. The familial incidence of microfilariae was about the same as that encountered elsewhere in Puerto Rico, so it appears that in spite of living in close contact with patients with apparent filariasis, the spread of the disease was minimal. This phenomenon is discussed briefly.

J.J.C.B

(238f) In a filariasis survey conducted at the Insular Penitentiary for Men in Puerto Rico, microfilariae were found in 4.35% of 1,256 inmates examined. Forty of the positives were examined physically for filariasis; evidence of hydrocoele was conspicuous in this group, but also in the 1,199 inmates negative for microfilariae. Only 9 histories of lymphangitis were obtained for the total group. Elephantiasis of the scrotum was observed in one of the positive cases and moderate thickening of the spermatic cord in another.

J.J.C.B.

239—Radiology.

- a. BREM, T. H. & COHN, H. A., 1946.—“*Paragonimus westermanii*: a case report.” 46 (5), 511-513.

240—Recueil de Travaux de Sciences Médicales au Congo Belge.

- a. HENRARD, C., PEEL, E. & WANSON, M., 1946.—“Quelques localisations de *Wuchereria bancrofti* Cobbold au Congo Belge. Cycle de développement chez *Culex fatigans* Wied, *Anopheles funestus* Giles, *Aedes aegypti* Linnaeus et *Anopheles gambiae* Giles.” No. 5, pp. 212-232.
- b. PEEL, E. & CHARDOME, M., 1946.—“Note préliminaire. Sur des filariés de chimpanzés, *Pan paniscus* et *Pan satyrus* au Congo Belge.” No. 5, pp. 244-247.

(240a) The existence of *Wuchereria bancrofti* in Belgian Congo is confirmed by these authors who localized several endemic foci in the Province of Leopoldville. Complete development of this parasite was achieved in 18 days in *Culex fatigans* as a result of experimental infections. It is not considered to be a good vector, however, in view of the large numbers of dead or degenerate filarial stages which were observed in the thorax. Development in *Anopheles funestus* was more rapid (10 days) and more efficient. In *Anopheles gambiae* the developmental cycle occupied 12 days. *Aedes aegypti* was found to be an efficient vector in which the cycle took 14 days. *Anopheles funestus* is the principal vector in the Matadi and Gongololo regions. In spite of the wide range of *W. bancrofti* and the high percentage infected in certain localities, the number of cases showing gross lesions of filariasis was surprisingly small.

J.J.C.B.

(240b) In this brief preliminary note the discovery of the adult female of *Microfilaria streptocerca* in the skin of *Pan paniscus* is recorded together with the finding of *Microfilaria binucleata* n.sp. and *Mf. rodhaini* n.sp. in a chimpanzee. Adult males and females of *Dipetalonema vanhoofi* n.sp. were found in nodules in the aponeuroses of the gallbladder and in the serous membranes of the portal veins. [But see also above, No. 164b.]

R.T.L.

241—Report of the New York State Veterinary College.

- a. WHITLOCK, J. H., 1946.—“The administration of phenothiazine and hydrocarbons to sheep.” 1944-1945, pp. 92-96.

(241a) [This paper appears also in Cornell Vet., 1945, 35, 328-332. For abstract see Helm. Abs., Vol. XIV, Pt. 5.]

242—Revista Argentina de Agronomía.

- a. MARCHIONATTO, J. B., 1946.—“Nota relacionada con la etiología de la ‘podredumbre de la raicilla’ del naranjo.” 13 (2), 96-100.

(242a) Marchionatto briefly discusses the aetiology of the root decay disease (*podredumbre de la raicilla*) of orange trees in Argentina and concludes that the chief causal organism is the nematode, *Tylenchulus semi-penetrans* Cobb.

T.G.

243—Revista de la Asociación Médica Argentina.

- a. JORGE, J. M. & RE, P. M., 1946.—“Hidatidosis y procesos graves anafilácticos.” 60 (583), 445-450.

(243a) Jorge & Re record several cases of hydatid cyst where accidental puncture during operation has resulted in a serious condition of shock, probably of anaphylactic origin. They suggest, therefore, that an operation for removal of hydatid cyst should always be preceded by treatment for desensitization. Small intradermal injections of hydatid antigen are recommended. The pre-operative use of calcium gluconate and intramuscular vitamin C is also useful. If the cyst is then punctured, either by accident or design, the inside should always be formalized.

P.A.C.

244—Revista Brasileira de Biologia.

- a. LENT, H., FREITAS, J. F. TEIXEIRA DE & PROENÇA, M. C., 1946.—“Algunos nemátodos de murciélagos coleccionados en el Paraguay.” 6 (4), 485-497.
 b. TRAVASSOS, L., 1946.—“Sobre um Metastrongylidae das cavidades nasais de *Didelphis marsupialis aurita* Wied.” 6 (4), 499-502.
 c. TRAVASSOS, L., 1946.—“Sobre a espécie tipo do gênero *Tetrameres* Creplin, 1846 (Nematoda, Spiruroidea).” 6 (4), 503-507.

(244a) Lent et al. describe *Capillaria rivarolai* n.sp. from the small intestine of *Tadarida laticaudata* in Paraguay. *Migonella fracchi* n.g., n.sp. occurs in the mesenteries of *Myotis nigricans* in Paraguay. It approximates to the genera *Litomosa*, *Litomosoides* and *Pseudolitomosa* but differs most obviously in the absence of a buccal capsule. Other differences can be seen in the position of the vulva, in the shape of the male tail and the size and appearance of the spicules. They record the presence in Paraguay of *Capillaria pulchra* and *Anoplostrongylus paradoxus* in *Tadarida laticaudata*, and of *Parallintoshius parallintoshius* in *Myotis nigricans*.

P.A.C.

(244b) Travassos describes *Troglostrongylus delicatus* n.sp., found in the nasal cavities of *Didelphis marsupialis aurita* from the valley of the River Itanas. The division of the dorsal ray is one of its interesting characteristics: it has a broad main trunk which divides into widely separated rays each of which divides into two sections which run parallel to each other. The ventral rays are fixed for some distance, the antero-laterals are completely separate, while the medio- and postero-laterals arise from a common trunk.

P.A.C.

(244c) Travassos redescribes *Tetrameres paradoxa* originally described by Diesing in 1835. It occurs in *Catharista atratus* in Brazil.

P.A.C.

245—Revista de Medicina Tropical y Parasitología, Bacteriología, Clínica y Laboratorio.

- a. KOURÍ, P. & AGUILAR, F. J., 1946.—“Indices endémicos de infestación trematódica.” 12 (2), 57-59.
 b. MALDONADO, J. F., 1946.—“Ciclo vital y biología del *Platynosomum fastosum* Kossak, 1910. (Trematodos: Dicrocoeliidae).” 12 (2), 60-68.
 c. KOURÍ, P. & AGUILAR, F. J., 1946.—“Indices endémicos de infestación trematódica. (Segunda comunicación).” 12 (3), 69-71.
 d. KOURÍ, P., 1946.—“El hallazgo de furcocercarias en el molusco *Drepanotrema lucidum*. Nota previa.” 12 (3), 73.
 e. BASNUEVO, J. G., 1946.—“Hexilresorcinol y tetracloroetileno.” 12 (3), 75-76.

(245a) Kourí & Aguilar have examined the molluscs of certain small areas in Cuba and their relationship to the cercarial fauna, partly in order to find the first intermediate host of *Platynosomum fastosum*, common in cats. In the first area 7 molluscan genera were identified, nearly 70% of them being *Praticolella griseola* and 20% *Polygyra lingulata*. In the second area 9 genera were represented with *P. griseola* and *P. lingulata* heading the lists again with frequencies of 40.41% and 37.80%. The percentage of *P. griseola* infested with cercariae varied at different times from 50% to 18.11%. The percentage of 2 samples of *Ampullaria paludosa* infested with cercariae was 60% and 1%, while of a single sample of *Subulina octona* 10% harboured cercariae.

P.A.C.

(245b) [This paper appeared originally in Puerto Rico J. Publ. Hlth, 1945, 21, 40-60. For abstract see Helm. Abs., Vol. XIV, Pt. 5.]

(245c) Continuing their survey of trematodes in Havana [see above No. 245a] Kouri & Aguilar suggest the preparation of an index of trematode infestation. This should consist of 3 parts: an index of trematodes found, an index of molluscan vectors and an index of the cercariae. The occurrence of *Fasciola hepatica* and *Platynosomum fastosum* has been worked out in part by Calvó Fonseca & Pérez, 1943 and Maldonado, 1945. Among the molluscs 9 genera are important trematode carriers and these are figured. Their distribution naturally varies with the different topographical districts. Cercariae were found as natural infections of *Pomacea paludosa*, *Subulina octona* and *Praticolella griseola*. P.A.C.

(245d) In the district of Pinar del Río, Cuba, certain molluscs were found to be natural hosts of furcocercariae. *Physa cubensis*, the most commonly occurring mollusc, showed 0.87% infestation. *Drepanotrema lucidum* was 5.12% infested while *Polygyra lingulata* and *Pomacea paludosa*, which were found only occasionally, appeared to be uninfested. Only dead specimens of *Limnaea cubensis* were found. P.A.C.

(245e) Basnuevo has used a mixture of hexylresorcinol and tetrachlorethylene as a vermifuge in cases of multiple parasitism with good results; 1 gm. hexylresorcinol dissolved in 4 c.c. tetrachlorethylene with 30 c.c. peanut oil is useful in cases of mixed *Ascaris*, *Necator* and *Trichuris* infections. When a *Taenia* is involved 6 c.c. male fern is added and the tetrachlorethylene reduced to 3 c.c. P.A.C.

246—Science.

- a. OLIVER-GONZÁLEZ, J. 1946.—“The possible role of the guppy, *Lebistes reticulatus*, on the biological control of *Schistosomiasis mansoni*.” [Correspondence.] 104 (2712), 605.

(246a) *Lebistes reticulatus* feeds actively on egg masses of *Australorbis glabratus*. It is thought that the egg masses may be an essential fish food. The fish also avidly feeds on the cercariae of *Schistosoma mansoni*. Observations are being made on the effect of its introduction into natural collections of water in regions of Puerto Rico where schistosomiasis is endemic. R.T.L.

247—Skandinavisk Veterinär-Tidskrift.

- a. KOFFMAN, M., 1946.—“Bidrag till kännedomen om elefantparasiter.” 36 (3), 161-172. [English summary p. 172.]
 b. SÖDERHJELM, L., 1946.—“*Echinococcus hydatidosus* hos ren (*Rangifer tarandus*).” 36 (6), 378-381.
 c. KOFFMAN, M., 1946.—“Om parasiter hos möss.” 36 (7), 424-442. [English summary p. 442.]
 d. LUND, H. M. - K., 1946.—“Entoparasites in the capercailzie (*Tetrao urogallus*).” 36 (11), 641-662.

(247a) A 17-year-old Indian elephant, which had been taken to Sweden 10 years previously, harboured *Grammocephalus clathratus* (Baird, 1868) hitherto recorded from African elephants, and *G. varedatus* Lane, 1921 recorded from Asiatic elephants. Koffman believes that these 2 types are simply varieties of the same species. R.T.L.

(247b) The reindeer herds in northern Scandinavia are infected with pulmonary echinococcosis to the extent of about 10%. It is in these districts that this disease occurs in human beings. R.T.L.

(247c) As parasitic infections can produce pathological changes in mice used for laboratory experiments and may therefore wrongly influence the interpretations of the results of such experiments, the author gives an account of the helminths, protozoa and insects hitherto reported in white mice. R.T.L.

(247d) Of 28 capercailzie (*Tetrao urogallus*), collected chiefly by the Norwegian Government Game Investigation Service, 13 contained *Capillaria longicollis*, 10 had *Ascaridia compar*, 11 had *Raillietina urogalli* and one had *R. globocaudata*. *Davainea tetraoensis* occurred in 3 young birds. Two specimens of *Syngamus trachea* occurred in a dead capercailzie chick. R.T.L.

248—South African Medical Journal.

- a. CAWSTON, F. G., 1946.—“Schistosomiasis in Southern Africa in its relation to the pollution of river-pools.” 20 (9), 240–241.
- b. CAWSTON, F. G., 1946.—“Intensive treatment of schistosomiasis.” 20 (15), 445.
- c. KIESER, J. A., 1946.—“Rooiwater (bilharziasis). Beskrywing van 'n Geval met dubbele besmetting.” 20 (20), 627–628. [English summary p. 628.]

(248a) Cawston suggests that, as cases of schistosomiasis diagnosed in India have sometimes previously resided in Natal, it is possible that the 4 cases reported from man in India may have acquired their infection elsewhere. He believes that little real progress in the control of schistosomiasis is likely until the disease is notifiable and that “species sanitation” should prevent the destruction of useful molluscs, but no method for effecting this is suggested. Water supplies should be drawn by pump from deep water, not from the surface. The fragile cercariae could be destroyed by forcible disturbance of infected water. R.T.L.

(248b) A Zulu boy with *Schistosoma haematobium* infection received a total of 64.5 c.c. of anthiomaline administered intravenously in increasing doses over a period of 18 days when the adult worms seem to have been destroyed. R.T.L.

(248c) A case is described of bilharzial infection with eggs of *Schistosoma haematobium* and *S. mansoni* in the urine. The infection was contracted near Pretoria. R.T.L.

249—Tea Quarterly.

- a. GADD, C. H. & LOOS, C. A., 1946.—“The problem of nematode control in tea plantations.” 18 (1), 3–11.

(249a) Gadd & Loos discuss various problems involved in the control of 2 parasitic nematodes infesting tea roots in Ceylon, namely, *Heterodera marioni* and *Anguillulina pratensis*. Though seriously injurious to tea seedlings, *H. marioni* is not a major pest of old roots on tea bushes. *A. pratensis*, mainly through its attacks on feeding roots, causes tea bushes to have an unthrifty appearance. Methods of control which can be applied to annual crops are inapplicable to perennial plants such as tea bushes and the authors discuss a number of biological and cultural aspects of the subject. They suggest that a possible fruitful line for further investigation is the host-parasite relationship to discover whether, as is the case in coffee culture, there occur resistant strains of tea which could be propagated vegetatively; at present tea is raised from seed. T.G.

250—Technical Bulletin. Virginia Agricultural Experiment Station.

- a. THRELKELD, W. L., 1946.—“The life history of *Ostertagia ostertagi*.” No. 100, 14 pp.

(250a) The life-history of *Ostertagia ostertagi* is very similar to that of *O. circumcincta* described by Threlkeld in 1934. The first ecdysis occurs on the 2nd day after emergence; the 3rd stage larvae appear on the 5th to 6th day. The larvae have begun to penetrate the abomasal mucosa 72 hours after oral administration, and 24 hours later have completed their second ecdysis, showing now sex differentiation. Fifteen days after administration immature adults are free or attached to the mucosa and on the 21st day mature males and females are found in the abomasum. R.T.L.

251—Tijdschrift voor Diergeneeskunde.

- a. HUMMELINCK, P. W., 1946.—“Onderzoekingen over de eieren van paardenstrongyliden.” 71 (10), 411–427. [English, French & German summaries pp. 416–417.]
- b. KOENS, H., 1946.—“Enkele praktijkervaringen met longworminfecties bij het lam en problemen, die voor den plattelands-practicus zich daarbij voordoen.” 71 (11), 253–266. [French & English summaries p. 266.]
- c. JONG, J. J. DE & STEGENGA, T., 1946.—“Maagstrongylose bij jongvee. (Mededeeling gedaan op de vergadering van de Afd. Friesland v. d. Mij. v. Diergeneeskunde op 30/11'45).” 71 (11), 267–270. [French & English summaries p. 270.]

(251a) The author has found it impossible to differentiate the eggs of the various genera of Strongylidae in the horse. The eggs, after laying, quickly reach the 7-celled stage and, save in exceptional cases, further cleavage ceases owing to lack of oxygen until the eggs leave the host. For the investigation of these phenomena rapid fixation with strong formalin alone or mixed with strong alcohol was essential. R.T.L.

(251b) Of the 3 species of lungworms present in the Island of Texel, *Protostrongylus rufescens* has no pathogenic importance. For animals infected with *Dictyocaulus filaria*, a system of meadow rotational grazing is necessary combined, in some cases, with medicinal treatment prior to housing for the winter. *Muellerius capillaris* is the prevalent cause of lungworm disease in Texel; as medicinal treatment is ineffective the infected animals should be isolated and well fed.

R.T.L.

(251c) A fairly large number of heifers grazed on an aerodrome near Leeuwarden suffered from diarrhoea with emaciation. The 20 animals which were examined contained many trichostrongyles and Cooperia. Elsewhere, however, in the province of Friesland, where there were deaths with the same symptoms, no trichostrongylosis was found and the symptoms are attributed to some deficiency.

R.T.L.

252—Transactions of the American Microscopical Society.

- a. ANNEXAUX, R. F., 1946.—“A new nematode, *Procamallanus pereirai*, with a key to the genus.” 65 (4), 299–303.
- b. CHANDLER, A. C., 1946.—“Some observations on the anatomy of certain male Acanthocephala.” 65 (4), 304–310.
- c. CHANDLER, A. C. & RAUSCH, R., 1946.—“A study of strigeids from Michigan mammals, with comments on the classification of mammalian strigeids.” 65 (4), 328–337.
- d. OWEN, R. L., 1946.—“A new species of cestode, *Choanotaenia numenii*, from the long-billed curlew.” 65 (4), 346–350.
- e. KRULL, W. H., 1946.—“The identification of *Thysanosoma actinioides* infections in sheep by examination of fecal pellets.” 65 (4), 351–353.
- f. RAUSCH, R., 1946.—“*Paranoplocephala troeschi*, new species of cestode from the meadow vole, *Microtus p. pennsylvanicus* Ord.” 65 (4), 354–356.
- g. JONES, A. W., 1946.—“The scolex of *Rhabdometra similis*.” 65 (4), 357–359.

(252a) *Procamallanus pereirai* n.sp., which is described from the “Jack Smelt” (*Atherinopsis californiensis*), is the first species of the genus to be reported from North America. A key to the species of the genus, based for the most part on male characters, differentiates 22 species. *P. kerri*, of which females only are known, is not included. As *Thelazo* Pearse, 1933 is similar to *Procamallanus* it should be removed from the Thelaziidae. As *P. parasiluri* and *P. slomei* have only a single spicule, they also may have to be removed to another genus. [In a footnote to this article, Annereaux points out that the name *Procamallanus pereirai* was published in 1940, without description, by C. U. Duckworth in reporting this work in the 21st annual report of the California Department of Agriculture (*Bull. Calif. Dep. Agric.*, 29 (4), 363).] R.T.L.

(252b) Certain features in the internal anatomy of *Macracanthorhynchus hirudinaceus*, *Hamanniella microcephala* and *Moniliformis dubius* are compared. In *Hamanniella tortuosa* the protonephridial organs are poorly developed; the excretory duct does not open into the well developed excretory bladder. Inconstancy in the number of cement glands was noted in this species and in *Moniliformis dubius*.

R.T.L.

(252c) Chandler & Rausch criticize Dubois' arguments for the retention of Alariinae and Diplostominae as distinct subfamilies and express the view that the characters upon which he depends are untenable even for generic differentiation. Two species of *Alaria* now described, viz., *A. dubia* n.sp. from *Mustela noveboracensis* and *A. minuta* n.sp. from *Mustela vison*, in which the vitellaria invade the hind-body, are cited in support of their contention. They consider that *Didelphodiplostomum* and *Theriodiplostomum* have no valid standing, that *Enhydridiplostomum* should include *E. fosteri*, *F. alarioides*, *E. clathrata* and *E. pseudoclathrata*. In addition to the above 2 new species, *Fibricola nana* n.sp. occurs in *Sciurus hudsonicus*, *F. cratera* and *Pharyngostomoides ovalis* n.sp. occurs in *Procyon lotor*, and *Alaria taxideae* and *F. cratera* in *Mephitis nigra*. *Didelphis virginiana* is a new host for *F. cratera*.

R.T.L.

(252d) *Choanotaenia numenii* n.sp., which occurs in *Numenius americanus americanus* in Nebraska, is compared with 5 related species and is similar to *C. stercoraria*. Miss Owen discusses the taxonomy of *Choanotaenia* and *Paricterotaenia*.

R.T.L.

(252e) As proglottides of *Thysanosoma actinioides* are eliminated singly on the surface of faecal pellets of infected sheep, they afford a ready means of diagnosing this infection in

individuals or in flocks. When placed in normal saline the fimbriae can be easily recognized. The egg capsules are discharged from individual segments before these are eliminated from the host. R.T.L.

(252f) *Paranoplocephala troeschi* n.sp. occurred in 16% of the meadow voles examined. It approaches *P. blanchardi* but the cirrus pouch and the eggs are much smaller, while the testes are larger, less numerous and do not extend so far porally. The ovary is situated nearer the centre of the segment. R.T.L.

(252g) The scolex of *Rhabdometra similis* is described for the first time from a single, and apparently abnormal, specimen with 3 suckers. R.T.L.

253—Transactions of the British Mycological Society.

a. DUDDINGTON, C. L., 1946.—“Predacious fungi in Britain.” 29 (3), 170.

(253a) Duddington lists the following as new British records of fungi capturing or attacking and feeding upon nematodes: *Cystopage lateralis* Drechsler, *Protascus subuliformis* Zopf, *Meria coniospora* Drechsler, *Harposporium anguillulae* Lohde, *Dactylella bembicodes* Drechsler. All these forms came from old cow dung, old manure or leaf mould. T.G.

254—Transactions of the Highland and Agricultural Society of Scotland.

a. CAMERON, A. E., 1946.—“Insect and other pests of 1945.” Ser. 5, 58, 101–120.

(254a) *Heterodera major* in oats caused several crop failures in Scotland in 1945 and may be more widely spread than is at present recorded. Cameron draws attention to the danger of building up an eelworm population by the growing of oats in annual succession practised by farmers during the war. R.T.L.

255—Tropical Agriculturist.

a. MAHADEVAN, P., 1946.—“A case of bovine nasal schisto[so]miasis.” 102 (2), 101–102.

(255a) Nasal schistosomiasis in a cow is reported from Ceylon. There was a mucous discharge from the nostrils with a rough blowing respiratory sound. The nasal mucosa was oedematous and studded with tiny abscesses containing the characteristic eggs of *Schistosoma nasalis* on raised patches. Cercariae corresponding to *Cercaria indica* XXX of Sewell were found in *Planorbis exustus*. R.T.L.

256—Turtox News.

*a. THRELKELD, W. L., 1946.—“Teaching helps on four ruminant parasites.” 24 (1), 10–17.

257—United States Naval Medical Bulletin.

a. STUBENBORD, W. & ALLEN, R. F., 1946.—“Hookworm disease in infants. Report of two fatal cases.” 46 (6), 915–917.

b. AMBERSON, J. M., 1946.—“Schistosomiasis and its control in Egypt.” 46 (7), 977–1010.

c. SAUNDERS, G. M., BIANCO, A. A. & JORDAN, W. S., 1946.—“Intradermal tests with *Dirofilaria immitis* antigen as a diagnostic aid in human filariasis.” 46 (8), 1242–1253.

d. MICHAEL, P., 1946.—“Intestinal parasitism. A statistical study on 1,000 patients recently returned from Pacific Area duty.” 46 (10), 1589–1596.

e. RUSSELL, H. K., EISENHOWER, E. W. & ROOSE, D. J., 1946.—“The influence of combat on the incidence of intestinal parasites.” 46 (11), 1716–1718.

(257a) As hookworm is reputed to be rare in children one year old, case reports are given of massive infections in 2 infants less than 6 months of age with *Ancylostoma duodenale* in Guam. R.T.L.

(257c) Saunders et al. have used a saline extract of *Dirofilaria immitis* in 1 : 10,000 dilution as an antigen in the diagnosis of filariasis. The flexor surface of the arm was the chosen site and here 0.1 c.c. was injected intradermally; the reaction was examined after 10 minutes and again after 24 hours. Definite wheal formation with erythema in 10 minutes or erythema with oedema after 24 hours was regarded as positive. Of 117 patients with a clinical diagnosis of filariasis 72% were positive, of whom 4 gave delayed reactions alone; of 115 patients who had been exposed to infection but had no clinical diagnosis of it, 27% gave positive results, while of 117 patients who were unlikely to harbour the parasite 9% gave positive results. The authors

suggest that this test may be useful in the diagnosis of filariasis when used in conjunction with eosinophile counts and with regard to risk of infection. P.A.C.

(257d) Of 1,000 patients from the Pacific war area 38 had hookworm, 7 had *Trichuris*, 3 had *Strongyloides* and one harboured *Ascaris lumbricoides*. Of 1,000 repatriated U.S. prisoners of war 159 had hookworm, 137 had *Trichuris* and 142 had *Ascaris lumbricoides*. R.T.L.

(257e) A comparison is made of the incidence of intestinal parasites in 3 equal groups of 100 individual American troops immediately after the invasion of the Palau Islands, and an analysis is made of 57 cases admitted to the gastro-intestinal service. An increase in hookworm, *Strongyloides* and *Trichuris* was notable in the combat troops. R.T.L.

258—University of Toronto Studies. Biological Series.

- a. BANGHAM, R. V. & VENARD, C. E., 1946.—“Parasites of fish of Algonquin Park lakes. II. Distribution studies.” No. 53, pp. 33-46.

(258a) Of 676 fish belonging to 22 species from Algonquin Park lakes 510, i.e. 75.8%, were parasitized. 58% of the 374 fish belonging to the family Cyprinidae were infected. The 75 species found are listed. R.T.L.

259—Växtskyddsnötiser.

- a. TIHKAN, M., 1946.—“Förekomsten av nematoder i klöverfrö—betydelsen av rensning.” 1946, No. 4, pp. 56-59.

(259a) Tihkan gives the results of an examination of over 300 samples of clover seed for the presence of clover nematode [*Anguillulina dipsaci*]. The seed was soaked in water which was then searched for nematodes. Three grades of seed were examined: (i) threshed but still in the husk—7 out of 64 samples were infected; (ii) hulled but mixed with other seeds and debris—7 out of 82 samples were infected; (iii) cleaned seed—2 out of 177 samples were infected. The importance of hulling and cleaning the seed is emphasized: the presence of nematodes in absolutely clean seed has never been proved. Tests in 1942 showed 37% of samples of clover seed infected as compared with 5% in 1945. This difference is thought to be due to the wet weather during the 1945 harvest, when the nematodes would have been able to wander from the dead flowers, whereas in 1942 the weather was dry and the worms would probably have become inert and remained in the dry flower parts at harvest. The 1945 survey revealed the presence of clover eelworm in a district where its presence had not been suspected. The use of resistant strains of clover is urged. [There is no indication as to the species of clover concerned.] M.T.F.

260—Veterinariya.

- a. ISTOMIN, I. S., 1946.—[Control of dictyocauliasis in calves.] 23 (1), 20. [In Russian.]
 b. ISTOMIN, I. S., 1946.—[Treatment of moniezirosis in lambs.] 23 (1), 20. [In Russian.]
 c. ORLOV, N. P., 1946.—[Notes on chemical disinfectants for controlling parasitic diseases.] 23 (2/3), 42-43. [In Russian.]
 d. IKKOL, 1946.—[Control of Moniezia in lambs.] 23 (2/3), 46. [In Russian.]
 e. ORLOV, I. V., 1946.—[Methods of protecting calves against lungworm invasion.] 23 (4), 4-6. [In Russian.]
 f. POTEKINA, V. A., 1946.—[Control of Moniezia in calves.] 23 (4), 6-7. [In Russian.]
 g. KAPITANAKI, M. V., 1946.—[A tube for use in anthelmintic treatment.] 23 (4), 40. [In Russian.]
 h. SKRYABIN, K. I., 1946.—[Progress made in helminthological research and its outlook for the future in the USSR.] 23 (5/6), 4-6. [In Russian.]
 i. CHEBOTAREV, R. S., 1946.—[Effect of parascariasis and strongylosis on the course of piroplasmiasis in horses.] 23 (5/6), 9-12. [In Russian.]
 j. ORLOV, I. V., 1946.—[Concerning the improvement of larviscopic diagnosis of lungworm infestation in calves.] 23 (5/6), 14-15. [In Russian.]
 k. SMIRNOV, A. I., 1946.—[Treatment of complications in dictyocauliasis of calves.] 23 (5/6), 42. [In Russian.]

(260a) By separating calves from adult cattle, both on pastures and in stalls, also by changing the grazings, Istomin achieved complete eradication of *Dictyocaulus* infestation. C.R.

(260b) Istomin obtained good results by treating 1,359 *Moniezia*-infested lambs with a 1·125% solution of copper sulphate. Glauber's salt was not given. C.R.

(260c) Orlov, testing the efficacy of "Kres" (phenol and saponin), 3% and 5% phenol, kainit, quicklime and superphosphates on the eggs and larvae of horse strongyles, found that some showed possibilities in the control of parasitic diseases. He recommends phenol, kainit and "Kres" as the most promising disinfectants. C.R.

(260d) Ikkol, in a short note, gives an account of the treatment of *Moniezia* in 5,000 lambs with copper sulphate solution without giving salts as a purgative. A few animals killed after treatment showed no tapeworms. C.R.

(260e) Orlov states that *Dictyocaulus viviparus* lives in the lungs of cattle for a shorter period than *D. filaria* in sheep, namely from June or July to November or December. The calves later get rid of these parasites without treatment. In his opinion the larvae of *D. viviparus* do not live longer than 3 weeks in summer and they do not climb up the grass. They are freed from the faecal masses when in the infective stage by flooding, and the main source of infestation therefore is water from the pools which form on the pastures after rain. The larvae cannot withstand desiccation at any stage of their development. The author thinks that the most favourable conditions for infestations with *D. viviparus* are periods of rain occurring at intervals of not more than one to two weeks. Some prophylactic measures against this infestation are given. In view of the essential differences between *D. viviparus* and *D. filaria*, he is of the opinion that husk in cattle should be known as micrurcaulosis. C.R.

(260f) Calves infested with *Moniezia* were dosed by the author with copper sulphate solution after fasting for 12 hours. After an interval of 2 to 3 hours a solution of Glauber salts was administered. The first group consisted of 25 calves from 3 to 5 months old. These were dosed with 75 to 100 c.c. of 1·125% copper sulphate and 80 to 100 c.c. of Glauber's salt; this had an efficacy of 76% (19 calves). The second group contained 20 calves from 3 to 5½ months old and they received 60 to 75 c.c. of 1% copper sulphate and later Glauber's salt. The efficacy here was 50% (10 calves). The 45 calves in the third group, from 3 to 6 months old, were dosed with 120 to 150 c.c. of 1% copper sulphate and later 140 to 150 c.c. Glauber's salt. The efficacy in this case was 86% (39 calves). The fourth group was composed of 80 calves from 3 to 7 months old and these were each given 120 to 150 c.c. of 1% copper sulphate but no Glauber's salt was administered. The efficacy obtained was 85% (68 calves). Potemkina considers that a dose of 120 to 150 c.c. of 1% copper sulphate for the calves is the best and that the additional dosing with Glauber's salt has no influence on the efficacy of copper sulphate treatment for *Moniezia* in calves. C.R.

(260g) When the standard stomach tube was unobtainable, Kapitanaki devised a substitute by taking two pieces of ordinary rubber tubing, one of less diameter than the other. The smaller was then inserted inside the other thus making it stiffer. He also advocates that after dosing horses with CCl₄, 300 to 350 c.c. of Glauber's salt solution may be given immediately. He estimates that the whole dosing operation then only takes 5 to 6 minutes. C.R.

(260h) On the occasion of his election to the Supreme Soviet, by the electors of the Kirghiz Republic, Skryabin explains how progress in Soviet helminthology is connected with the increase in national wealth. C.R.

(260i) In both natural and experimental cases of piroplasmosis in horses, Chebotarev found that those with *Parascaris equorum* and heavy strongyle infestation had a higher mortality rate than those with *P. equorum* and only a moderate strongyle infestation. In the districts where piroplasmosis is widely distributed, the horses infested with helminths more often acquire this disease. The author explains that the more severe forms of piroplasmosis are due to the allergy of the tissues as a result of *Parascaris* and strongyle infestation. C.R.

(260j) In view of the pasty consistency of cattle faeces the larvae of *Dictyocaulus viviparus* cannot migrate actively out of them and it is most difficult therefore to diagnose a light infestation by the Baermann method. Orlov is of the opinion that an improvement could be effected by changing the physical properties of the faeces. For this he advises the partial drying of the

sample before it is put into the apparatus. The surface of the sample then becomes corrugated and many cracks form of varying depths and widths. The hygroscopic conditions of the faecal sample in the Baermann apparatus create currents of different strengths and the larvae are washed out and fall to the bottom. Therefore, in order to diagnose the infestation, samples of faeces should be collected and placed on paper, board or Petri dishes etc. in the room or shed. In summer, the samples are partly dried in 5 to 7 days. The characteristic differences are also given between *Dictyocaulus* larvae and the larvae of different stages of strongyles. C.R.

(260k) Smirnov, treating calves suffering from pneumonia of *Dictyocaulus* origin, administered novarsenol intravenously in doses of 0.4 to 0.6 gm. and 0.5 gm. streptocid. This was given thrice daily for 3 days with good results. In the absence of the afore-mentioned medicaments, he used rivanol on 837 calves in solutions of 1:300, 1:500 and 1:1000 also with good results. C.R.

261—Veterinarski Arhiv.

- a. ERLICH, I. & VARIČAK, T., 1946.—“Operativno odstranjanje uzročnika singamoze.” 16 (3/4), 61–64. [German summary pp. 63–64.]
- b. AUDI, S., 1946.—“Paramfistomoza buraga ovce.” 16 (5/6), 102–110. [English summary p. 110.]

(261a) Surgical treatment of *Syngamus* infection in fowls is described. Inspection of the trachea with a bright light indicates the point of attachment of the worms. The worms are generally attached in front of the syrinx. The fowl is then placed upon its left side and the skin is incised in the midline. A lateral incision is made in the trachea with a pair of small scissors and the worm removed with fine forceps. Location of the worm is usually not difficult. The skin is subsequently sutured leaving the unsutured tracheal incision to close spontaneously. The operation may be followed by a short period of respiratory difficulty but recovery is complete in a few days. Several hundred cases showed no ill-effects on growth or development. The method is cheap, rapid, of value where chemotherapy fails, and does not harm the fowl. S.G.C.

(261b) Heavy infections with *Paramphistomum cervi* did not result in serious pathological changes in the paunch. Their pathogenic significance increased only if the sheep also suffered from other helminth infections. R.T.L.

262—Veterinary Journal.

- a. BRITO-BABAPULLE, L. A. P., 1946.—“Phenothiazine and the elephant caecal worms.” 102 (11), 368.

(262a) The administration of 10 gm. of phenothiazine daily for 4 days to 4 baby elephants resulted in the evacuation of large numbers of *Equinurba sipunculiformis* and *Murshidia falcifera*. R.T.L.

263—Veterinary Medicine.

- a. HABERMANN, R. T. & CARLSON, F. N., 1946.—“Lead arsenate relieves scouring in lambs due to tapeworm infestations.” 41 (9), 306–310.
- b. GONZALEZ ALVAREZ, J., 1946.—“The incidence of setariasis in Colombia.” 41 (9), 311–314.
- c. KERNKAMP, H. C. H., 1946.—“Parasites and parasitic diseases of swine.” 41 (9), 315–318.
- d. JOHNSON, M., 1946.—“Internal parasites in five-week old Great Dane pups.” 41 (10), 367–368.
- e. GOLDSBY, A. I. & EVELETH, D. F., 1946.—“Diagnosis of internal parasites of sheep.” 41 (11), 398–403.
- f. VINE, L. L., 1946.—“Verminous pneumonia in dogs and cats.” 41 (12), 444–445.
- g. TABLEMAN, H. G., 1946.—“Teniasis in lambs.” 41 (12), 455–456.

(263a) It is shown that tapeworm infestation is an important cause of scour in lambs in South Dakota, although *Haemonchus* and other nematodes may be contributory factors. The disease was effectively controlled by doses of 1 gm. of lead arsenate which removed a high percentage of *Moniezia expansa* but failed to eliminate *Thysanosoma actinioides*. R.T.L.

(263b) Setariasis is responsible for considerable stunting and loss of condition in solipeds and cattle in Colombia. 8% of all cattle from hot regions examined at Bogota abattoir were affected. *Stomoxys calcitrans* is suspected as the chief vector. No benefit was obtained from

novarsenobenzol, atoxyl, potassium picronitrate, antimosan and various antimonial derivatives in use by many veterinarians. R.T.L.

(263c) The helminth parasites of swine in the United States are listed and total 22 species. An account of recent work deals chiefly with the treatment of ascariasis and pulmonary helminthiasis. Intratracheal injection of turpentine and olive oil is not satisfactory. R.T.L.

(263d) The faeces of 2 Great Dane pups 5 weeks old contained eggs of *Toxocara canis*, *Toxascaris leonina* and *Ancylostoma caninum*. The animals were bloated and showed marked depression. The hair coat was lustreless and the buccal mucosa very anaemic. R.T.L.

(263e) The control of sheep parasites has in many areas in U.S.A. passed from veterinarians to drug salesmen. The commercial exploitation and exaggerated claims for phenothiazine have created the impression among shepherds that an occasional treatment will remove all the troubles due to parasitism. This report describes the technique employed at the North Dakota Agricultural Experiment Station for the determination of the species of helminths and their numbers. A bag for the collection of faecal samples is described. R.T.L.

(263f) Vine is of opinion that *Ancylostoma caninum* and roundworms can play an aetiological role in pneumonia in cats and dogs. *Toxascaris leonina* is more often responsible for verminous pneumonia in cats than hookworms for pneumonia in dogs. For hookworm he gives a small dose of *n*-butyl chloride weekly. Some cases of "distemper" were diagnosed by him as verminous pneumonia. Actively acquired immunity is by far the most important natural means of host protection. Maturity and good health are essential for the host to respond quickly to the immunological stimulus of the invading parasites. R.T.L.

(263g) Four cases are mentioned in which the absorption of metabolic products of *Moniezia* infection in lambs, which died in convulsions, is thought to be the cause of death. R.T.L.

264—Veterinary Record.

- a. SPRENT, J. F. A., 1946.—"Some observations relating to the critical anthelmintic test." 58 (45), 487-488.

(264a) Experimental evidence is put forward by Sprent to show a serious flaw in the critical anthelmintic test when applied to nematodes of sheep. Adult *Bunostomum trigonocephalum* were inserted through a permanent cannula into the duodenum of worm-free sheep. All the faeces were searched for worms and these, together with the number obtained at subsequent autopsy, fell far short of the number administered. This shows that a large percentage of the worms that did not establish themselves were digested by the host and that the same would apply in anthelmintic work, making the critical anthelmintic test give a conservative estimate of the efficiency of the drug administered. J.W.G.L.

265—Wiener Tierärztliche Monatsschrift.

- a. BAUMANN, R., 1946.—"Beobachtungen beim parasitären Sommerbluten der Pferde." 33 (2), 52-55. [English and French summaries p. 55.]

(265a) The so-called parasitic "summer bleeding" of horses seen in Greece was caused by the piercing of the skin by female *Parafilaria multipapillosa* for the purpose of egg deposition. *Musca* species swarm on the bleeding spots and act as intermediate hosts. Microfilariae of this worm do not appear in the blood; if embryos are found they are attributable to other filariae. R.T.L.

266—Year Book. Institute of Inspectors of Stock of New South Wales.

- a. WALKER, D. J., 1946.—"Carbon tetrachloride poisoning. Further observations with particular reference to the nutritional plane." 1946, pp. 41-43.
b. MACPHERSON, O., 1946.—"Some notes on the choice and methods of administration of anthelmintics for pigs." 1946, pp. 61-65.

(266a) Five additional cases of death in sheep from carbon tetrachloride are recorded. Of these 4 support the view that toxicity may be related to a rising plane of nutrition. The deaths occurred both on the richest and poorest country. In each case there had been a recent increase

in the amount of green food available but experimental attempts to induce carbon tetrachloride poisoning in this way have so far failed.

R.T.L.

(266b) A useful table sets out, for the anthelmintic recommended for each species of helminth in the pig, the dose rate, percentage efficiency, convenient method of administration, and the time interval between successive treatments. The helminths listed are *Hyostrongylus rubidus*, *Ascarops strongylina*, *Physocephalus sexalatus*, *Trichostrongylus axei*, *Ascaris lumbricoides*, *Strongyloides ransomi*, *Macracanthorhynchus hirudinaceus*, *Oesophagostomum* spp., *Trichuris* spp., *Stephanurus dentatus* and *Metastrongylus* spp., all of which one may presume occur in New South Wales although this is not stated.

R.T.L.

NON-PERIODICAL LITERATURE

267—ANTHONY, D. J., 1946.—“Diseases of the pig and its husbandry.” London, 2nd edit. viii+287 pp.

268—*BABIĆ, I., 1946.—“Udžbenik veterinarske parazitologije (helmintologije i arahnoentomologije), II. dio Trematoda (metelji).” Zagreb, Kluba studenata veterinarske medicine “Jaroslav Hvala”. [Din 64.]

269—BAER, J. G., 1946.—“Le parasitisme.” Lausanne, 232 pp.

270—BAKER, A. D., RACICOT, H. M. & KEENAN, W. N., 1946.—“The potato-rot nematode, *Ditylenchus destructor* Thorne, 1945, in Prince Edward Island.” Science Service, Dominion Department of Agriculture, Ottawa, Canada, 2 pp.

This is an account of the occurrence of the potato-rot nematode, *Ditylenchus destructor*, in Prince Edward Island and the measures taken to prevent its spread. An inspection of the 1945 crop revealed 6 cases of infection involving about 60 acres. Since no control measures have been devised no certificates are granted for any seed potatoes on the farms concerned; no potatoes are to be grown again on the infested land and the fields are to be seeded down to grass and maintained in grass indefinitely.

M.T.F.

271—CAWSTON, F. G., 1946.—“Schistosomiasis in Southern Africa in its relation to rainfall, artificial methods of control and the natural enemies of the molluscan hosts.” [Paper communicated to the 44th Annual Meeting of the South African Association for the Advancement of Science, Pretoria, July, 1946.] Pretoria, 6 pp.

In a short discussion on the effects of climate and other ecological factors on the schistosome vectors in South Africa, Cawston considers the influence of droughts and floods on the snail fauna, discusses the bionomics of *Physopsis* and describes experiments in which fish (*Gambusia* and *Lebistes*) were shown to destroy cercariae. The vertebrate and invertebrate animals which attack freshwater snails are listed and discussed. Certain methods of snail control and the survival of schistosomes and snails are touched upon. He considers that schistosome ova may remain viable for up to 10 days in human excreta. The maximum infection of snails in Natal occurs between January and May. Molluscan hosts occurring in South Africa are enumerated: about 7 of the 764 South African species of molluscs are vectors of human trematodes. S.G.C.

272—FLOCH, H. & LAJUDIE, P. DE, 1946.—“Sur le parasitisme intestinal en Guyane française.” Institut Pasteur de la Guyane et du Territoire de l'Inini. Publication No. 121, 4 pp.

Floch & Lajudie compare their data resulting from their faecal examinations of 17,179 inhabitants of French Guiana during the years 1939 to 1945 with those published by Labernadie & Marneffe for 1922 to 1927. The details are tabulated.

R.T.L.

273—GAXIOLA, V., 1946.—“Aspectos clinicos de la onchocercosis.” Mexico, 208 pp.

274—McCUBBIN, W. A., STEINER, G., THORNE, G., BUHRER, E. M. & CHITWOOD, B. G., 1946.—“The potato rot nematode, *Ditylenchus destructor* Thorne.” United States Department of Agriculture, 7 pp.

McCubbin et al. have written a useful account of the potato-rot nematode, *Ditylenchus destructor* Thorne. In a historical introduction they point out that in Europe there are apparently at least 2 forms which attack potato tubers, one which affects only tubers and another which, besides attacking tubers, can cause disease in potato stems and leaves and other weed hosts as well. The nematode affecting tubers only has been named *Ditylenchus destructor* by

Thorne and its occurrence has been established in Idaho, U.S.A. and in Prince Edward Island, Canada. The authors deal with the differentiation of the eelworm disease in potato tubers from common fungal diseases of the tuber, with the extent of the damage and host range in Idaho where the only other known host is the common dandelion (*Taraxacum officinale*), with the recognition of the nematode *Ditylenchus destructor*, its life-cycle and with methods of control. T.G.

275—NAPIER, L. E., 1946.—“The principles and practice of tropical medicine.” New York, xvi+917 pp.

276—ROBERTSON, D., 1946.—“Helminth parasites.” Proceedings of the Hill Cattle Conference, Oban, February 26th and 27th, 1945, pp. 36-38.

Robertson draws attention to the frequency and importance of liver-fluke in cattle in Britain although little is known of its incidence in Scotland where conditions for its spread are ideal. He is of opinion that it is better to rely on destroying the intermediate host than on treatment. Drainage is of the highest importance. Dressing of large areas with copper sulphate is impracticable owing to cost; 20 lb. of copper sulphate per acre mixed in the proportion of one part of copper sulphate to 4 parts of sand is recommended for confined areas. Destruction of rabbits, hares and deer, as reservoir hosts, is important. As regards parasitic gastro-enteritis and parasitic bronchitis, the first step in tackling the worm problem in hill cattle is proper management of young stock. Two experiments are cited to illustrate the relation of nutrition and parasitic worm diseases in sheep. Poorly fed lambs acquired 3 times as many worms as well fed lambs from naturally infected pastures. R.T.L.

277—UNITED STATES DEPARTMENT OF AGRICULTURE, 1946.—“Golden nematode of potato. Report for 1945.” Bureau of Entomology and Plant Quarantine, 11 pp.

This is a report of work carried out on *Heterodera rostochiensis* during 1945 by the U.S. Division of Domestic Plant Quarantines, Bureau of Entomology and Plant Quarantine, in co-operation with the Division of Nematology, Bureau of Plant Industry, Soils and Agricultural Engineering, and the Department of Agriculture and Markets of the State of New York. It comprises accounts of a survey of potato-growing areas, of developments in quarantine regulations and of control investigations. The 1945 survey covered about 45% of the total potato acreage liable to be infested in Long Island, and revealed 5 new infestations all within 2 miles of the known infested areas. The quarantine activities included the extension of the area under quarantine to cover the newly found infested areas and the control of shipments of potatoes from this area to prevent the spread of nematode cysts, particularly to seed-growing states. Three main lines of control investigations are reported briefly. The fumigation of tubers liable to be carrying cysts was carried out in bulk lots, using methyl bromide at various dosages. The results were unsatisfactory as, at the dosages needed to kill the eelworms, the tubers were damaged. Soil fumigation with D-D was carried out on a field scale at rates of 450 to 1,200 lb. per acre. The fumigant was applied in October 1944 with a tractor outfit after ploughing and disking the land and was followed by rolling. Counts were made of viable eelworm cysts before treatment and after harvest of the potatoes grown in 1945. A 90 to 99% kill was obtained, the lowest dosage of D-D giving results differing but little from the higher ones. From 9 to 2,839 viable cysts per plant remained in the soil after treatment—enough to rebuild a heavy infestation in a short time. Further field tests with D-D were started in the autumn of 1945. The third line of investigations was concerned with the mechanical cleaning of potatoes. The grading process did not materially lessen the number of tuber-borne cysts. Hand washing and scrubbing gave a reduction of 80% in the cyst count; dry brushing by a standard Boggs cleaning unit was less effective. An experimental water-jet apparatus reduced the cyst counts by 75.2%, but it is thought that it could be improved. Cyst counts showed that soil from a 100 lb. sack of potatoes might contain 550 cysts and a 300-sack carload might carry 281,880 cysts in the sacks and on the tubers. Further investigations already started include host range studies, soil temperature studies, and tests of hot water and chemical treatments of potatoes. M.T.F.

278—VEGA, C., 1946.—“Anotaciones bibliográficas acerca de la oncocercosis en México y Guatemala 1917-1945.” Universidad Nacional Autonoma de Mexico, 20 pp.